The Builder.

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Masterpieces of the Industrial Arts.

WE have just closed a volume we are sure most of our readers will open with pleasure. It is a translation of M. Burty's book, entitled "Chefs-d'Œuvre of the Industrial Arts," edited by Mr. Chaffers.* With a graceful array of illustrations of some of the most delicate and elegant objects ever made, it gives us most of the leading facts in the history of ceramic wares, and some account of many of the artists who produced the choicest specimens; also valuable information relating to glass, enamels, jewelry, plate, and tapestry: not after a dry fashion, or with stilted talk, but with life, vigour, colour, and surprises thrown in with as much freedom as Palissy exhibited when he placed odd startling creatures on his most magnificent pieces. The originality and ardour of the author are not diluted with attempts at literary finish. Ceramic art evidently fills his heart, and in glowing praise and particularization of it he has poured out his soul, thinking more of meed than manner. Something of his enthusiasm must grow upon those who turn over his pages. His palette is spread with such lustrous variegated colours, blue-greens, grey-blues, red-browns, milky whites, and delicate violets, prominently, that it must charm them. Those who are not concerned in the details of the various manufactures will find themselves brought to an enjoyable appreciation of many treasures in our museums that before had but little meaning for them: the circle of producers will find much more significance in Mr. Chaffers's labours.

The work is opened with an account of terra-cotta. Two specimens of ancient Gaelic pottery, found in La Vendée, precede a notice of the subjects and styles of the antifixes and bas-reliefs displayed on the façades of Roman houses. From the frequent repetition of the same subject, we may see that the old artists, when the power of choice was not strong in them, contented themselves with doing over again what had been done before, showing their individuality only in a modification of the details. Two specimens of Greek terra-cotta are given; the head of a shepherd from the cabinet of M. Thiers, and a girl at her toilet from the Pourtalès collection. More is made of the Italian Renaissance, where we first come in contact with the bane of collectors, sham antiques. One of the chefs-d'œuvre of the Renaissance period mentioned in the original work by M. Burty has been suppressed in this translation, because, in the interval, the sculptor who was the author of it has come forward and owned the counterfeit. An illustration is given of a figure of this period which is pleasing. It is supposed to represent a Florentine princess. She stands upright, in a robe of brocaded satin, singing from a sheet of music she holds in her hand. At this period, the Della Robbias step in; but as their process of applying enamel to the terra-cotta removed it from the category of works executed simply in this material, their works are not mentioned under this heading. The large medallions at Hampton Court, and in the Hôtel Scipio Sardini in Paris, are mentioned with delight as harmonizing better than anything else possibly could with brickwork; and modern architects are blamed for not introducing similar features more frequently than they are just now timidly beginning to do. The eighteenth century saw the result of an extravagant use of terra-cotta, when gentlemen's grounds presented the appearance that old-fashioned tea-gardens have handed down to us. Earthenware figures, life-size, met the eye at every turn. In France this absurdity seems to have been carried farther than with us. But the base use to which the material has been put should not blind us as to its value. Its moist and malleable qualities permit an artist to retouch it after it has come from the mould, and thus give every specimen a mark of originality. As M. Burty says, it has less rigidity than bronze, less uniformity than marble, and is in every way well fitted for the representation of objects of a familiar character. He continues, "Let our artists use bronze for heroic, marble for ideal statues, but take the clay and the modelling-tool more often in hand to reproduce the features of their contemporaries, or embody some pleasing fantasy." After this, we turn over a page as though it were a veil, and find ourselves in the beauteous presence of enamelled *faience*.

In old times, in Italy, it was a general custom to make presents of plates and dishes: even lovers presented their mistresses with small dishes in preference to other objects; and on their own cups and bowls were inscribed the names of the dear ones with expressions of praise and affection. Hence it is, perhaps, that so many of the ancient specimens of this branch of industrial art seem to shine again with fire, tenderness, devotion, and self-abandonment. Pieces of ware in some hands were like pieces of music or poems in others,—the vehicles of great feeling. One of the princes of the house of Medici is said to have spent ten years in perfecting a method of making porcelain, spoiling thousands of pieces before he was able to make the examples now so precious in the eyes of collectors. In France, in later times, a particular kind of ware, manufactured at Nevers, reflected the politics of the day. M. Champfleury, a French collector, has accumulated a series of plates and salad-bowls made during the storms that ushered in and succeeded the French Revolution, on which may be read most of the popular cries of those days. M. Burty says of this "speaking ware," that it is more eloquent than "the prose writings of many authors who contemptuously pass over these naïve and robust records of French history." A collection of Rouen ware reads, too, like a chapter on French heraldry. The old German families highly appreciated the artistic capabilities of their ceramic stoneware. On the occasions of a wedding or a birth they appear to have ordered vessels to be made recording those events, and these heirlooms placed on their sideboards, with their gourds and jugs bearing coats of arms, mottoes, and sacred subjects, must have largely contributed to the calm, substantial, stately sheen of the interior of their houses. Ceramic ware, both foreign and that of native manufacture, has long been held in esteem in cultivated circles in our own country. The *Spectator* tells us, when Sir Roger de Coverley sent him with a letter to the beautiful widow, he found her library to be nearly half full of chinaware; the folios were separated from the quartos by great jars, and a pile of smaller vessels rose in a pyramid between these and the octavos; the last-mentioned were bounded by tea-dishes of various forms and hues, arranged on a wooden frame to look like a pillar, and the plays and pamphlets were enclosed in a square of grotesque works made up of scaramouches, lions, mandarins, trees, and shells, all in china; in other words, her library had more ceramic treasure in it than books. M. Burty ascribes the present revival of taste in this art in France to the reaction arising from the raptures of fashion over the so-called Etruscan vases in the days of the first empire. This classic terra-cotta at that time was the only kind that was tolerated by the learned; but after a season artists wandering in Normandy or in the forest of Fontainebleau for their holidays, possessed themselves of the radiant Rouen dishes and Nevers plates then in the hands of the peasantry, and bringing them home triumphantly, eventually reinstated them in the degree of estimation in which they had originally been held. A sixpenny *assiette à coq* rose in value to sixty francs. The further course of the revival is thus traced:—

"In the meanwhile, amateurs and traders of taste had brought from Italy dishes to which the potters of Majorca and Urbino had given the grand style of Oriental art, or of the fine periods of Italian art. People began to admire the changing hues of the metallic lustres, the free and bold attitudes of the figures, and became at last so enthusiastic as to pillage even the apothecaries' shops. Closer relations with China, Japan, and Persia brought into the market new food for the ever-increasing curiosity of the public. The success of those printed vessels with expressive outline, those vases with long-clawed dragons twisting round their sides, those deep dishes with pinks and carnations blowing in the hollow of them, began to disturb the souls of the disciples of the old Classic school, and it is from this return of taste to the Oriental porcelain that we may date all serious discussion concerning the principles of decorative art. At last, the eighteenth century having reconquered the ground it had lost, Dresden figures and Sèvres services were appreciated for their refined gallantry and elegance."

The history of the Oiron pottery well illustrates the enthusiasm expended upon articles of ceramic ware in these latter days. In 1839, attention was called by Willemin to a splendid ewer then in the collection of the Baron de Monville. It, with twenty-four pieces of similar ware, was supposed to form part of a service belonging to Henry II., on account, principally, of the initials C and H occurring upon it, placed back to back, and interlaced. Three of the pieces then ornamenting the Pourtalès and Préault collections were published by M. du Sommerard, when the public interest became intensified. We are told "The imagination of amateurs and critics became excited; much speculation went abroad on the subject; romances were composed with those for their theme; some insisted that they came from the studio of a sculptor named Ascanio, the pupil of Benvenuto Cellini; others that they were modelled by Girolamo della Robbia, whom Francis I. summoned over from Italy to decorate the terra cottas of the Château de Madrid; later on it was believed that the artist-printer Geoffrey Tory, whose sign was, 'The Broken Vessel,' had printed on the sides of the flagon some typographic ornaments which resembled niello; then that some Florentine prince had sent them as a present to the husband of Catharine de Medicis." The prices the different pieces commanded were enormous. A bowl that Sauvageot left to the Louvre was bought by him for 200 francs. But after curiosity had been thus stimulated the prices ran up. The ewer of the Baron de Monville was sold, in 1835, for 2,500 francs; a salt-cellar, at the Rattier sale, 1859, sold for 12,500 francs; a candlestick at the sale of Lassayette, 1862, the ornamentation of which, we are told, was of the meanest kind; went for 16,000 francs, and was afterwards sold again in England for 18,000 francs before it was placed in the South Kensington Museum; and a biberon, at the Pourtalès sale, brought 27,500 francs. The ware was analysed by M. Brongniart, and its mode of manufacture made out sufficiently well to admit of its reproduction by an able hand in the factory. He found that

* Chefs-d'Œuvre of the Industrial Arts. By Philippe Burty. Pottery and Porcelain, Glass, Enamel, Metal, Goldsmiths' Work, Jewelry, and Tapestry. Illustrated. Edited by W. Chaffers, F.S.A. London: Chapman & Hall, Piccadilly, 1869.

the groundwork of the piece was first made without any relief or ornament, not turned, but thinly moulded and pressed, and this was afterwards covered with a thin coating of the same material, on which were placed the ornaments, and finally the glaze. The number of the pieces known to be in existence amounted to fifty-four. At last M. Benjamin Fillon found out the secret. An antiquary showed him two fly-leaves of an old Prayer Book that had been illuminated by Claude Gouffier, the grand equerry and friend of Henry II. In one of the miniatures in the ornamentation M. Fillon saw a gourd identical in its character to the mysterious ware, with the armorial bearings of Gouffier on it. With this clue he visited Oiron, the castle of the grand equerry, now in ruins, and in the architecture, ornament, and further pieces of the ware, he found confirmation of his belief that he had found the author of the much-admired pottery. He published his discovery, and it is now generally agreed that during the long widowhood of the mother of Claude Gouffier, she spent some of her time in presiding over the manufacture of this ware at her castle of Oiron. Francis I. entrusted her with the education of his second son, afterwards Henry II.; hence we may be assured she was a person of cultivated taste. Associated with her were Francis Charpentier, potter, and John Bernart, her secretary; and, as death removed the members of this gifted triplet, a decline can be traced in the objects manufactured. The pieces are believed now never to have formed a set, but to have been made singly for the decoration of sideboards for presents, as some of them bear the arms of neighbouring families. The castle of the grand equerry was devastated in 1568, when we may presume the manufacture ceased. Though M. Burty quotes of it that "Bernart bestowed on it his talent for ornamentation, Charpentier his neatness of touch in handling the clay, and Helen her exquisite but somewhat sadly-toned refinement of taste," he seems to think the Oiron faience has been overrated; but his editor thinks that hitherto it has proved inimitable.

We are next shown a Hispano-Moorish dish, on which is depicted a heraldic beast. This ware, with that of Persia, is considered the richest that can be displayed on a dining-room sideboard. Of it our author vaunts, "These basins of huge dimensions, which are flashed by metallic oxides with lightning like the jet of incandescent gas in a fire, and whereon are blazoned animals treading mottoes and labelled war-cries under their feet as they would the briars of a heraldic forest; these rude and delicate witnesses of war, and of the art and industry of the fifteenth century of Spain, open with unequalled force and gracefulness a wide world to the study of enamelled plates and dishes of enamelled faience." The chief seat of its production was Malaga, and the secrets of its metallic lustres are supposed to have been imported there either by Arabs or Moors. The Alhambra glitters with it. A vase from this storehouse, of white earthenware with ornaments of two shades of blue and a prismatic copper colour, interlaced knots of Arabic characters and a medallion, formed like a Moorish arcade, on which are two antelopes, has been imitated by a French firm often mentioned in the course of the work for their clever reproductions. Architects are recommended to turn to this Hispano-Moorish majolica as to a mine in which they may find the materials to build palaces outshining those of the "Arabian Nights." That the composition of metallic lustres is not lost we may be assured by the sight of it on modern productions at the exhibitions. The authorities of South Kensington, however, are in possession of a work on the process of metallic lustre which has never yet been published, which may throw some additional light on the subject. M. Burty remarks that it is curious such a liberal museum has not transcribed and edited this document.

When Italy commenced the manufacture of enamelled ware, her success surprised herself. Her chief craftsman, Luca della Robbia, was first a goldsmith, then a carver, before he was a modeller in clay. In endeavouring to trace his development from one to the other, our author thinks he may have been actuated by a desire to produce a work entirely with his own hands. Before his first work in this material was accomplished, he had been employed, in conjunction with Michelozzo and Mazo di Bartolomeo, in casting and chiselling the gates of the vestry of the church of San Maria del Fiore, for which his first Ascension in terra cotta was produced; and it is supposed that it may have been from a desire to be unassisted that he chose this new vehicle. The effect of his coloured bas-reliefs upon the black and white backgrounds of Florentine architecture was magical. His large medallions, lighted up the sombre façades, and his friezes gave life and youth. It is almost a wonder that, with these examples in existence, polychromy should have passed into the stage of disuse and ridicule in which the commencement of this century found it. One of the first Parisian attempts at a revival was a failure. It occurred at the theatres on the Place du Chatelet, where the architect introduced it in medallions of Music and Poetry, inserted in the walls; but as no continuation of the ornamentation was made, these isolated objects stood out too glaringly, and had to be removed. Italy, as we have said, rejoiced in the happy colouring and pleasing forms taken by the new ware. "Sideboards were weighted down with gourds and ewers, whose handles were formed of leaning sirens, or of twisted and knotted serpents." The Siege of Troy was depicted on plates, the Metamorphosis of Ovid on dinner-sets; even Raffaelle did not disdain to make designs and colour cartoons for the workmen's guidance. Some idea of the amount manufactured comes to us when we read of the quantity destroyed. At a banquet given by Cardinal de Birague, Pierre de l'Estoile relates, "There were two large tables covered with 1,100 or 1,200 pieces of faience, full of dried fruits, sugar-plums, and confects of all kinds, built up into castles, pyramids, platforms, and other magnificent fashions, most of which were thrown down and broken by the pages and servants of the Court, who were of a wanton and insolent nature. And great was the loss, for all the service was excellently beautiful." Eighteen Italian manufactories are mentioned. That at Faenza is placed foremost, probably on account of its name being applied by the French to every kind of terra cotta and enamelled ware. The particular produce of Faenza is called an archaic style. It is decorated with minutely-drawn grotesque figures, which stand out upon blue and yellow grounds. We must refer the reader to the work for the list of factories, and descriptions of their chefs-d'œuvre. Bernard Palissy now appears on the scene.

This irrepressible, irritable, versatile genius is allowed to tell much of his own story in quotations from his works. The author is proud of his countryman, and lingers over the details of his experiments, failures, perseverance, and success, from the day he was shown the enamelled cup of milky and brilliant white made after the process known only to the Dukes of Ferrara, so that, when after years of pounding and baking various materials in kiln after kiln made with his own hands, in the face of hardships and discouragements, he was at last rewarded by the ascertainment of the secret, and his ware, with its green lizards, brown serpents, marvellous cray-fish, tortoises, and crabs, became the wonder of the day. An illustration of one of the grottoes designed by him is given, besides specimens of his goblets, dishes, and plates. Around the walls of the grotto were niches, and between

THE WORKSHOP OF ÉTIENNE DELAULNE, A FRENCH GOLDSMITH OF THE YEAR 1576

them were medallions, with busts of heroes; in its centre was a fountain playing into a basin, in which disported fish and reptiles, all in ceramic ware. This rustic retreat was to be planted with trees, shrubs bearing berries, and mosses, and every inducement held out to the songsters of the grove to frequent it. Such a grotto as this he is known to have made for Catharine de Medicis; and some moulds, two furnaces, and vitrified bricks, found in building the new State apartments adjoining the gallery of the Louvre, are believed to be the very ovens and moulds he used in its production. M. Burty suggests that portions of the grotto itself may yet be found in the gardens of the Tuileries, for it may have been filled in when it went out of fashion, and not altogether destroyed. As in the case of the Hispano-Moorish ware, a French potter has succeeded in reproducing the Palissy dishes so exactly as to perplex amateurs. Only when taken into the hand, and their lightness is observed, can any difference be perceived.

The Nevers ware was originated by Domenique Conrade, whom Louis of Gonzaga summoned from Italy to his duchy when he took possession of it as his wife's wedding portion. An early specimen of it, a large basin for a fountain, with twisted serpents and maritime goods for decorations, is in the Hôtel de Cluny. It is considered to be more interesting after it began to imitate the Venetian ware that was founded upon Oriental models, and then proceeded to trace Chinese figures in manganese violet colour; but it never attained any great elegance. It was essentially a popular ware, as its reproduction of the songs and sayings of the day testifies. The illustrations given of it consist of an enamelled square from the ruined castle of the Dukes of Nevers, one of the popular plates bearing patriotic emblems, date 1789, and a somewhat gaudy bénitier, date 1764. We quote a recommendation to architects:—

"At the present day there is still one manufactory of great commercial importance at Nevers, that of Monsieur Signoret. Although but little of decorative art is baked there—for notwithstanding great encouragement from all sides, the architects but dare use it but very moderately—it was in that factory, which employs a considerable number of hands, that the entire ornamentation of a house at Bernay, in Normandy, was made of late years. We have seen and been over it, and we can assure the reader that nothing could be more cheerful or agreeable to the eye than those pavements bearing the initial or name of their owner; those encrusted plates on the frontages, the coloured balustrades and balconies which look out on the court-yard and gardens."

The chefs-d'œuvre of Persian ware are magnificent, telling, appealing, and satisfying. Though we do not see the colour in the examples given, it is impossible not to feel it. The graceful outlines and rich ornamentation suggest as much beauty and wealth in the hues, for those who could make the first could give the other. We read of fawn colour, brown, and bright blue, for the grounds of their porcelain, with manganese lilac, bright yellow, green, turquoise-blue, bright red like unpolished jaspar, for the decorations. Tulips, roses, hyacinths, honeysuckle, and Indian and clove pinks, are the favourite flowers depicted, and these are arranged with consummate taste. Birds and animals are also placed on Persian ware. The author calls upon French potters to study the forms and details of the flowers of the West, and taking these with brown and green enamels already in use on the "more vulgar pottery of the South," invent and produce original designs of like beauty. Chinese porcelain, although inexpressibly clever, does not convey to us so much of the poetical sentiment as the ware of Iran. Our classical education is blamed as having unfitted us for recognizing the purity and truth in Chinese figures. M. Burty, however, who is a ceramist of the world rather than of France, can see more than Greek beauty in many of the Chinese productions, more especially in the early examples. He has tired of the interminable variations upon the Medici vase, and the persistency of French artists in introducing the human figure either as a support or a relief, and sees much freshness and power in Chinese work. He finds excuse for the tendency of this ancient meditative people, whom he also characterizes as melancholy, towards the monstrous, in the suggestion that their winged dragons and other unknown beasts are probably traditions of extinct animals. Their sacred horse, Fou-hi, their regal bird Fong-hoang, the branched-headed Ki-lin, depicted so frequently in Chinese ornamentation, he thinks, are not less likely to be preservations of a knowledge of pre-historic creatures, than was the mention of the great roc in the "Arabian Nights," which bird was at one time judged to have lived in the imagination, but is now known to have actually existed. Their love of nature prompting them to their superb colouring making them dissatisfied with less than the melongena's violet, the scarlet-runner's red, the thick creamy white of the camellia; their attention to details; their faculty of imitation; and their patience, are all dwelt upon with appreciation. Like the Western barbarians, the mandarins have begun to be collectors, and the soldiers who sacked the incomparable Summer Palace are stated to have found in them rich and ready customers for even fragments of old porcelain. On the other hand, when the Japanese ambassadors who visited Europe a short time ago were shown the treasures of the Ceramic Museum of Sèvres, they were unable to identify their own ware, or point out any distinction between it and that of China; and they declared that no one in their country troubled himself about the subject. But to this quick, fervent, artistic people is ascribed that family of designs in which a rose tint predominates on a field of black, and those gorgeous dishes on which peonies and chrysanthemums are blooming either after the natural manner or in squares. But the artists of Japan are in course of degradation to manufacturers. A merchant captain gives them an order for 10,000 vases of No. 12 pattern, and 15,000 dinner services of No. 25 pattern, to be executed in the shortest time at the lowest price; and, asks our author, what is the result? "Modern Japan gives us nothing but flimsy decorations, and China trashy copies."

We are enabled to reproduce some of the samples of ceramic treasures of which Mr. Chaffers has thus extended the fame. Beautiful as are the Oiron faience, and that from some of the Italian manufactories, it will be seen that the Persian has not less charm.

In the chapter on table-glass there are three illustrations,—one of a Persian bottle and lamp from an Arab mosque, a group of Venetian glass, and another of German glass, all startlingly bright and beautiful to see. Persian glass is enriched with precious stones, enamel, and gilt. Two of the chefs-d'œuvre preserved in the Treasury at Vienna are described. "The first is a bottle, on the neck of which are two small handles; it is decorated with interlaced zones, alternated with a groundwork of little rosettes of gold, edged with red, and blue enamel. The other, which is still more singular, had a frieze composed of little draped figures, four separate medallions, and a cypress tree, which, for Zoroaster and his disciples, was an emblem of the soul's flight into heaven." These were in the Treasury when a catalogue of its contents was compiled in 1373, when they are called "duæ amphoræ ex Damasco." A Byzantine bottle, now in the possession of M. Gustave de Rothschild, was sold at the Soltikoff sale for 5,500 francs. On this highly-valued specimen are medallions, on which are displayed the three-petalled flower that first gave the idea of the fleur-de-lis, a device found on some of the most ancient monuments of Asia. M. Burty keenly feels the sea and sun-like beauty of Murano glass, its tints of Mediterranean blue, milky white, veined sea-green, and delicate pinks, and calls especial attention to a goblet now in the British Museum, on which early Murano glass-workers painted in the medallions the portraits of two affianced lovers, with the legend, "Amor vol Fè" (Love exacts fidelity). The German glass is heavy, quaint, and generally charged with heraldic devices, enamelled. Wheel-engraving on the surface of glass was much practised in France, especially in the days of Louis XVI., when some very delicate work was produced. Our modern discovery of the power of hydro-fluoric acid to produce the effect known to us as ground-glass is treated at length, both as to the process and the purposes to which it can be advantageously applied. England is accredited with the first use of oxide of lead as a basis for glass. More than a hundred years elapsed before it was adopted in France, and then the glass made with it was called "the Queen's Crystals." Among the chefs-d'œuvres of stained window-glass, we are reminded of those in the Abbey of Tegernsee, in Bavaria, painted in the tenth century by the monk Wernher (the most ancient known); those of the thirteenth in the apse of the Cathedral at Bourges; the three rose windows on the portals of the transepts of Notre Dame de Paris; the windows of the Sainte Chapelle; the fourteenth-century work at Chartres, full-length figures of apostles and prophets; and of the round window at Beaumont-le-Roger, Normandy, as a sample of the Renaissance. There are illustrations of the different periods as well as short accounts of the process of painting on glass, its revival, and modern workmanship.

The three kinds of enamel are also fully described; *cloisonné* is the oldest, *champlevé* being but a development of the Oriental art, though *painted* enamels, the third variety, are not so new but that they were known to the Greeks and Etruscans. An Egyptian bracelet, Etruscan ear-rings, Chinese and Romano-Gaulish vases, illustrate ancient enamels; and ewers, plaques, medallions of Limoges manufacture those of the Renaissance. This is an exceedingly ample chapter. Besides the processes, the styles of different masters are discussed, and brief biographies of the leading artists furnished; sufficient information, in fine, is grouped together to give both artists and ordinary readers much to think over. The tomb of William of Valence, in Westminster Abbey, is rightly mentioned as a chef-d'œuvre. The enamels of Léonard Limosin are highly valued, both for their brilliance and harmonious colouring, and for their exposition of the style of furniture and decoration in the time of the Valois. Then come those of Pierre Raymond, who wrought, in the middle of the sixteenth century, dinner and dessert services, for the leading noble families in England, Germany, and Holland. Jean Cour is another artist whose enamels are in great esteem. He made the beautiful cup presented by Francis II. to his affianced bride, Mary Stuart, which was sold at the Pourtales sale for 35,000 francs. The cover of this love-gift is one of the chefs-d'œuvre illustrated. With the Valois passed away the taste for enamels. Bernard Palissy deplores that enamel buttons made for three francs a dozen were selling in his time for a halfpenny a dozen. In later days we read of Jean Petitot's enamels being pounded in the jeweller's mortar, for the sake of their gold plate, just as some of Jacques Callot's copperplates were bought by ironmongers to be made into saucepans. Nevertheless their time has come round again, and they are now held in the highest estimation. Petitot's portraits are scarcely larger than sixpence. It was he who painted under the superintendence of Van Dyck a portrait of Charles I., and afterwards, on the death of this patron, portraits of Louis XIV., the Queen-mother, and many members of the French court. The Chinese likewise excel in this art. Reviewing its career and prospects, our author, whose mind is eminently receptive, expansive, and longing for progress, says,—

"All, therefore, that enamel now has to do is to follow the lead of the modern world. It ornamented the reliquaries and super-altars at a time when church furniture was of all importance in the mind of the age. Later on it produced the handsomest possible description of ware next to plates and dishes of embossed gold and silver. Later still it has endowed women's ornaments and jewelry with an ever-varying charm and novelty of design. Now it must enter into the ornamentation of the furniture of palaces and great houses. It combines especially well with dark red, black, or dark brown, such as oak, ebony, and hard foreign woods, which modern good taste has consented to leave unvarnished."

We are enabled to give from the book a view* and description of an enameller's oven. The description is by M. Popelin, a distinguished enameller of our day, and we quote his own words:—

"'The oven is composed of three principal compartments, placed one over an other, but each one quite indepenent of the other; these are the laboratory, the dome or conical cover, and the chimney.'

The laboratory, A, is a rectangular vessel, with a semi-circular aperture in front; a door, P, also in clay, with a perpendicular handle; a projecting horizontal tablet, D, little more than 2 in. thick, but extending the whole width of the laboratory, on which the earthen door rests; beneath is, I, the place for the reception of cinders, in which there is an opening, which may be closed by a movable button, to regulate the current of air; a grate of clay, Z, pierced like a skimmer, is placed inside the oven immediately above the cinder-box, and a stopper to fit it is placed on the perforated plate. This compartment contains the fuel, which, when set alight, quickly burns up, owing to the draught from the two circular air-holes situated at the sides of the oven. The chimney, C, needs no explanation. The dome or conical ceiling, B, which is the receptacle for the enamel, is simply a trapezoidal roof, without a base, perforated with holes at the top. It fits on to the laboratory, which it exactly resembles externally. The stand on which the enamel is placed is introduced by the door. The numbers 5 and 9 answer to the tongs and poker, the use of which is well known; No. 10 is a kind of iron pincher, or scissors, made flat, which are used to take hold of the plates 1 and 2 when in the oven and hot. These plates are of thin hard earth, on which the plate of enamel is placed."

The working of bronze and iron is treated in the same manner as is each art in succession. First is traced its infancy in the hands of Tubal Cain, and then its gradual Oriental perfection.

* See p. 266.

A chef-d'œuvre, of which early mention is made, is a dagger from the collection of Prince Soltikoff, now in the possession of the Marquis of Hertford, on the steel blade of which is engraved a hollow line, on the flattened sides of which is a number of small rubies, which give all the appearance of a streak of blood upon it. The handles of Oriental weapons are usually enriched with rubies, sapphires, pearls, and diamonds, but this illusion of blood on the blade is a rarity. Greek armour, the work of the gods, must have been exquisite. The account on the Iliad of Agamemnon's armour is quoted to show its perfection, but no relics of this period can be pointed out. The first specimen illustrated is an Italian sword of the sixteenth century. M. Burty is fired with ardour as he contemplates arms:—"Nothing is nobler than collections of arms," he declares. And then he enumerates the chefs-d'œuvre in the cabinets of the Count of Nieuwerkerke and the Marquis of Saint-Seine. Instead of a bronze statue to celebrate the bravery of a person of second-rate distinction, he would bestow upon him a sword of honour, which he could transmit to his descendants. We are shown, after the jewelled weapons, a series of bronze statuettes, medals, vases, candlesticks of the manufacture of different countries and all ages. We can do no more than indicate that those interested in this branch of the arts will find much to gratify them on the diversified pages to which we are referring. An iron gate of the twelfth century, of scroll-work branching right and left and clasped together with infinite grace (see p. 266), keys with open-work and entwined handles, a clasp and key of a fifteenth-century purse, a frame for a signboard, a knocker ornamented with interlaced crescents and monograms of the date of Henry II. of France, contrasted with specimens of modern work, such as the iron gates of the new Parc Monceaux and Candelabra made in England, elaborate this chapter. There is a prophetic announcement that the electro process is sure to triumph over the ancient one of casting. Already it has been applied, we are told, to the outer covering of the Pope's waggon, the locksmith's work of the Empress's apartments at the Tuileries, and the doors of the church of St. Augustine.

In the next section there is this distinction made between the goldsmith and the jeweller:—"The goldsmith is the jeweller of the dressoir; and the jeweller is the goldsmith of the jewel-case." There is something very touching about old jewelry. It seems almost profane to examine lightly, for the mere curiosity of their workmanship, trinkets that were worn, and prized, and carefully guarded by beautiful women, who loved and were loved; even though it was ages ago men went down to their graves blessing them, and, perhaps, raving about them with their last breaths. Here we have the ear-rings, jewelled pins, and pendants that may have been worn by the "beautiful Shulamite," King Solomon's wife; and here is a bracelet that once decked the sleek olive-coloured arm of a slanting-faced Egyptian. Or, perhaps, we take from a tomb a trinket that has laid upon a faithful heart till it mouldered away, or was placed round the neck of a dead beauty with a burst of passionate grief by those who never smiled more; and we hold it up to the light, and only say the jewellers of those times must have used some process to fix these exquisitely minute intertwistings that we cannot trace. But in the present case there is too much sympathy for all human conditions, as well as for art, to admit of coldness. Phœnician, Greek, Byzantine, Jewish, Early French, and German work are all spread out in dazzling array. Of course, the contents of the jewel-rooms of the French monarchs furnish many examples. Froissart has recorded the presents made by the gentry of Paris on the coronation of Queen Isabeau, and carried to her on litters by men dressed as Moors with their faces blackened, and others disguised as a bear and unicorn, consisting of gold pots, ladles, and dishes; scent-bottles, bonbon-boxes, salt-cellars, pots, lamps, silver dishes and trays. The regal accumulations would have been enormous by this time if it had not been for rainy days when wars had to be paid for and prisoners ransomed, on which occasions heaps of such treasure was obliged to be melted down. The author quotes M. Léon de Laborde:—"If children had to be settled in life and a dowry given them, it was the jewel-room which furnished the required sum. And more, in every day life scarcely a day passed without a dive being made into one's treasure to make a present of jewelry, a golden drinking-cup, or a simple gilt dish, to some favourite or relation, a foreign ambassador, a messenger bearing the tidings of some victory or defeat, or to the modest outrider, who came as fast as his horse would carry him to announce the birth of a son or a nephew." Drageoirs, bowls on which preserved fruits and sweetmeats were placed upon the dressoir, or handed round at table; aigueres, or ewers for water, of fantastic forms, sometimes in the shape of men, sirens, lions, birds; hanaps, or drinking-cups; the small repository for spices, drinking-cups and spoons, intended to be placed on the table, and first made in the form of a ship and called a "nef;" and salt-cellars with serpents entwined about them, to give warning of poison; are some of the articles upon which the goldsmith lavished his resources.

We reproduce a view of a reliquary of the thirteenth century brought from Basle (see p. 266). There are many noble names in the list of Italian goldsmiths; for most of the great sculptors and painters were first versed in the use of the hand-vice. They are all enumerated in their turn; and Benvenuto Cellini, like Bernard Palissy, is allowed to tell again his oft-told tale. Some of the papal coins and medals by this last-mentioned celebrity are illustrated. His gold enamelled salt-cellar, representing earth and ocean, described by him at great length; his bronze nymph of Fontainebleau; his Perseus, the casting of which he relates so minutely; a vase and cup of Oriental jasper, attributed to him, are also given. Étienne Delaulne is another celebrated goldsmith, whose biography is entered into. He has left a view of the interior of his workshop (1575) here reproduced (p. 258). His busy workmen, hammering and blowing bellows, and grinding away in their slashed doublets and trunk hose, present a very picturesque appearance. Diamonds are touched upon. A pendant, after Gilles Légarré, seventeeth century, is illustrated, of which M. Paul Mantz has said, "This is the most reasonable, solid, and soberly French sort of jewel ever worn by the Montespans and Fontanges." M. Burty, too, gives the palm to precious stones over any other kind of jewels. The small enamelled figures of virtues and vices, or horses on ovals no bigger than nutshells, produce no effect at a little distance, he thinks; they become but as a blot: these should be left to the sculptor or statuary. On the other hand, he says, nothing can be more telling and beautiful than the intense brilliancy of a well-cut and well-mounted diamond. Here, as in other departments, he thinks much of English progress.

"Nowadays jewelry is still doing marvels. The English, who daily import workmen from us at enormous wages—the English, and the English only—can compete with our Parisian jewellers. They have the same superiority with regard to the freshness of polish and brightness of colour of their metals; ours, however, have pre-eminent chasteness of mounting, lightness, and strength; producing twice as much effect with half the number of stones. Workmanship is now more perfect than ever it was."

When Louis XIV. sent all his plate, jewelry, and silver furniture to the mint—a sacrifice M. Burty compares to that a captain is obliged to make when he throws his cargo overboard—we read there were huge orange-tree boxes and sofas of solid silver, besides an immense heap of still more sumptuous articles of less startling dimensions. It is in this tragic melting down that all Cellini's work is supposed to have disappeared. There have been imitations of these made even recently. The author refers to the sale of some shields made by a goldsmith of the present day to the King of Prussia as works by Cellini, who placed them in his museum, and enjoyed his possessions exceedingly till the fraud was discovered. In reference to the cups and vases now given as prizes at races and other competitions, our author declines to name their artists, and says sensibly:—

"Unfortunately, these chefs-d'œuvre are, for the most part, signed not by the artist who designed them, but by the maker who fabricated them; and we will not once establish a series of mistakes over which the future will not have spare time enough to hold an inquest. If, therefore, we hear that a trinket or statuette, a ring or a cup, comes from such and such a shop, well and good; but let it not be said that it is the work of this or that master, for that is equivalent to saying that a particular book was written by the publisher or bookseller of whom one may chance to purchase it."

Concerning tapestry and carpets, the author says ever since man forfeited his natural liberty he has been endeavouring to disguise the walls of his prison-house, and these are but items in the sequence of his inventions. First there was mural painting, then mosaic ornamentation, then tapestry; this was supplanted successively by gilt leather, painted wood, and painted paper. He gives India the credit of the invention of tapestry in remote ages, before Homer made Hector desire his mother to bring out the specimen of it she loved best, and spread it on the knees of glorious-haired Minerva. The way the Smyrna maidens began to make carpets for their wedding dowers, whilst they are yet children, with the warp stretched between two trees, which gradually grow under their hands as the months and years elapse, is told. But the body of information consists of a notice of existing chefs-d'œuvre and a history of the Gobelins manufactory. We have a representation of a falcon chase on a piece of arras tapestry at the Castle of Aroné; the history of David and Bathsheba, worked in Flemish tapestry of the reign of Louis XII.; and a sporting specimen of the tapestry of Neuilly; but more beautiful than either of these is an illustration of a Persian carpet of the sixteenth century on silk, the dominating colour of which is a brilliant yellow, described as being as intense as the core of a ripe apricot, on which groundwork is a graceful variegated design worked in black, white, green, and grey, and different shades of blue and red. This is, of course, pointed out as the style which should have occupied the designers and colourists of our day, instead of the bouquets and scroll-work they have produced. For the future, it is thought likely the Jacquard loom will yield a carpet that will supply that first sought-for quality, cheapness. Some such appliance is already at work at Neuilly, where models are set out as if for enormous shawls on several thousand sheets of cardboard pierced with cylindrical holes. This is called "a democratic and social loom," for after the pattern is once set out on the pasteboards the groundwork rapidly decreases in value, and what was worth ten thousand francs at first, by the time it is reproduced for the tenth time is only worth a thousand. The subject of hand-tapestry is not gone into except so far as the gallant insertion of a pattern for hand-needlework, for the encouragement of fair readers, taken from a Venetian work by Giovanni Ortani, 1567.

To look carefully over this work brings an impression into the mind exactly like that which occupies it after a long day spent in the South Kensington Museum, or in the Louvre, or in the Vatican. And it also brings a desire to visit those courts and *salles* again, to see the lordly dishes and other triumphal specimens of the great ceramists, the clever, dainty, cunning enamels, the bronze and ironwork of departed centuries, the sumptuous goldsmith's work and sparkling jewelry, with the new lights its perusal has conferred.

ART GLIMMERINGS.

AMONGST those who are considered the most barbarous people, when even the art of house-building was, and is now, but little practised or understood, there is a wish shown to produce certain kinds of ornamentation, which, although of a simple and rude character, still indicate the natural desire which exists in human nature for more than mere utility. The forms were made to assume something like geometrical symmetry, such as the zig-zag and other patterns. Then there is an intermingling of various kinds of lines which has produced the knotted work which is to be seen in the productions of the Anglo-Saxons and the Scandinavians. In this way parts of the weapons and implements of the New Zealanders are adorned, and also many of the intricate and often beautiful patterns which are made in India at the present day. In Lapland, where the people burrow in the snow, or live in the most miserable kind of huts, there is to be found on vessels, lamps, and implements an elaborate and well-executed kind of ornament.

When examining the earliest productions of ancient people, and of those who are now in a comparative state of barbarism, it is remarkable to notice the general resemblance which these bear to each other, and how, as progress is made, the varied lines in the first examples, as if it were by accident, assume a rude resemblance to the form of the human figure, animals, and flowers.

In primitive nations, not only is the desire shown to decorate arms, articles for general use, war vessels, and other objects, but even amongst the most uncivilised people there is the wish shown to decorate the person,—the unsightly process of tattooing, the crowns of feathers, the teeth of wild beasts, choice skins, and furs, all indicate this natural instinct; and there can be no doubt that this feeling has been

to a considerable extent the means of advancing progress. Many instances might be given, but it may be sufficient to mention that this is to be especially marked in the history of the Anglo-Saxons, who, with the aid of the distaff, and quaintly-fashioned looms, assisted by various dyes, were enabled to manufacture articles of both male and female costume, which seem to have been remarkable for fineness of quality and picturesque elegance of appearance; and at a very remote date we learn that the Anglo-Saxon ladies were remarkable for their skill in embroidering parts of dresses and in making the tapestry hangings of beds and apartments. In this way they were important pioneers of English art.

As we have before said, it is curious to note when the power of drawing figures, as we see them in ancient illuminations, on the walls of churches, and the oldest examples of tapestry and embroidery, was acquired, how long a period elasped before what we may call the elevational style of drawing became exchanged for works which exhibited the faintest indication of the knowledge of perspective; and the same result may be noticed in the efforts of children, who, by an instinctive feeling for pictorial art, are led to the attempt to make drawings of objects which they have constantly before their view. In these cases there is the same difficulty to be overcome which for so long puzzled the early limners.

The writer has frequently noticed the sketches of very young children which have been remarkable for a degree of feeling and a power of expression which would seem to show promise of future excellence; but great is the difficulty, and long the patience, required, to cause those dawnings to assume a more finished and refined stage, to indicate the delicacies of outline, and the niceties and varieties of distance, which are needed for a complete picture or the representation of natural objects on a flat surface. How best, during early years, to teach the practice and principles of art, when there is shown to be a natural faculty for it, is not an easy matter to determine, especially when it has to be carried on in connexion with the usual school education. The practice of writing is an impediment to the teaching of drawing, and we have often noticed that it has required long care to get boys and girls who have been under the training of the writing-master to make a firm upright or horizontal line. In order to prevent the sloping of all perpendicular lines to the angle which is commonly used in writing, we have seen various means tried.

It would be interesting if we had more examples of the very earliest works of our most celebrated painters, and it would also be worth while to preserve with care the sketches made by men who have risen to literary eminence. Amongst those who have shown ability in this way may be mentioned the late Thomas Hood, some of whose pen-and-ink sketches were remarkable for both humour and intense feeling. They are, however, for the most part so slight that they are not likely to be rightly understood by those who have not had the advantage of art training or knowledge. Some of those designs are generally known in consequence of their having been engraved and printed with Hood's writings; but several of them were drawn on the wood from the sketches by an artist who was well practised in this description of work. And although this may have been the means of making the engravings more presentable to the public, in some instances the spirit and freedom of the originals have suffered. There are also some remarkable sketches by Thackeray, and others of much merit by Mr. G. A. Sala. The sketches of the two last-named writers are carried much further than those by Hood. We believe that there are some pen-and-ink scraps by Charles Lamb still left, and some of our readers will be reminded by these remarks of other works of a similar description.

It is a question on which there has been much difference of opinion as to whether or not men like Thackeray who have shown not only a certain degree of ability for art, would in that direction have arrived at the same extent of eminence that they have done in others. We think not; for it is requisite in addition to the teaching to have peculiar faculties to enable any one to become a great painter, a great sculptor or musician, or a famous architect or engineer. It has been urged that by industrious application success may be achieved in any of those professions. It is not, however, likely that Peter Nicholson, clever as he was as a mathematician, and noted as he also was for constructive skill, would ever have become celebrated as an architect; or that Thackeray, or those others to whom we have referred, would, notwithstanding their marvellous skill in making wood pictures, have been able to produce finished delineations on the canvas.

We have briefly noticed the difficulties which there are in acquiring the right practice and mechanical practice of art; but when some progress has been made, it is pleasant to watch the results of fitting genius, aided by industry and right training. It is with proportionate pain that the decline of skill in artists who had risen to eminence is noticed. No more distressing instance of this is to be met with than that of the late Mr. Ewbank, whose picture of Edinburgh and other fine works are the pride of several collections, and which, when now occasionally offered for sale, produce large prices. In the prime years of his life the works of this artist, owing to his intemperate habits, declined in merit; and towards the end, the paintings produced were mere daubs, and his sketches became utterly worthless.

Luke Clennell was another sad instance of the decline of artistic power, and a lapse into original conditions, after this artist had produced many water-colour drawings and oil paintings, which raised him to a foremost position. One of these was the picture of the famous charge of the "Horse Guards at the Battle of Waterloo." The success of this and other works was the means of obtaining for the artist the commission to paint a large picture of the meeting of the allied sovereigns, after the long European war, and it is believed that such was the extent of the worry and trouble in obtaining the needful sittings from various illustrious persons, that he was driven into a state of mind which rendered confinement in a lunatic asylum necessary. When there, notwithstanding the cloud which had come over the intellect, the hand was kept busy in the production of sketches and slight drawings; but few persons would have thought that those productions were by the master who had previously shown its cunning, and delineated in an excellent way the old Border castles, the animated scenes of country fairs, and the terrible rush and the strife of contending hosts.*

Ten or fifteen years ago the boys in the general schools for the middle classes, and even those of a higher rank, had less opportunity for producing any work of an artistic nature than even the young ladies; but few boys in the middle schools, and even persons who had received a very liberal education were able to delineate the most simple object in nature; some by rule and compass learned to draw geometrical figures; and there was also the ornamental penmanship, executed in the pieces which were shown at Christmas time, in which there were flourishing ornaments which imitated the forms of birds, fishes, and other creatures, which had some pretensions to artistic design; but beyond the matters mentioned there were but few opportunities of acquiring a knowledge of the principles of art or of forming that kind of taste which would be likely to produce a better description of articles required for general use, or to lead (even if they were made) to a proper demand for them.

As regards the girls, they had the advantage of the practice of embroidery and various kinds of hand-wrought lace, some of it very beautiful; we have also seen very creditable copies of pictures of a superior class, done with coloured lamb's wool upon white silk. The effect of some of those needlework pictures is good. The manner of executing those needlework illustrations, was to strain the silk and prepare it in a peculiar way, and an artist accustomed to the work drew in water-colours, and with all the needful tints, and light and shade, a good representation of the picture to be imitated. Then the young lady matched the colours of the drapery, foliage, rocks, foreground, and so on; the faces, hands, and limbs left without the wool, just as the artist had coloured them; the light tints of the sky were also kept in this way. There were also the samplers; an elaborate performance, one or more of which most young girls executed in their youthful days. Those once familiar objects are getting scarce, and the custom of working them has almost gone out of use. They are, however, interesting, inasmuch as they are examples of a particular kind of art-work, and also show the gradual way in which the old style of ornament gives way to the new; and it may be observed that this is to be noticed not only in needlework, but also in ironwork, wood-carving, the fashion of earthenware vessels, and many other matters. For instance, in some rural districts there may be seen ale-mugs, and other implements of modern manufacture, which in colour, shape, and quality of material could not be readily distinguished by a practised antiquary from those of Elizabethan date: we may, in illustration of our meaning, mention the fashion of coffin-furnishing, which is still in partial use. The bright white devices, some of them grouped together; others bearing crowns, heraldic shields, &c., put together in a way similar to those which are so often to be met with on tombs of the reign of Charles II., and up to about the time of George I. Good examples of these are to be met with on the monument to the memory of the daughter of Sir Christopher Wren in the crypt of St. Paul's Cathedral, and in many other places. The devices are arranged in imitation panels (formed with nails) of lozenge, square, and oblong shapes. On referring to drawings of the coffin of Charles II., and comparing it with those at present in use, it is easily to be seen that the general shape has been altered for the worse; but, as regards the ornamentation, this will be found, especially on the coffins provided by the old-fashioned undertakers of London, to have an appearance of considerable antiquity. Some of the heads of the winged cherubs are worth attention in consequence of the artistic expression which has been given to them. These have probably been struck from moulds which have been in use about two centuries, or are facsimiles of such works. Even the shrouds provided by the undertakers are of such an antique appearance that the fashion may have remained unchanged since Queen Elizabeth's reign, and even from before that time.

* The composition of the picture of the Charge of the Guards is worthy of study. Besides the excellence of the drawing, the effect of the motion or rush of the troops is wonderfully shown by the arrangement of the lines.

MIRFIELD, YORKSHIRE.

The foundation-stone of the new parish church here was laid on the 29th ult. by the Rev. R. Maude, M.A., vicar. The old church is not to be taken down until the new one, which will be situated on an adjoining site, is complete.

The style is Early English, and it was designed by Mr. G. G. Scott, R.A., under whose direction the works will be carried out. The plan consists of nave, aisles, chancel, and tower, with open porch on the south side, and two vestries at the north-east end of the north aisle, one of these being for the use of the choir. The apparatus room and coal-vault will be under these, and approached by steps from the outside.

The church will be entered westward through the tower, which will add considerably to the length of the building, it being 153 ft. long clear of the walls. The nave is 82 ft. long, divided into five bays, is 27 ft. across, and 64 ft. from the floor-line to the ridge of the roof. The aisles are each 13 ft. 6 in. wide in the clear, and the chancel, including the sanctuary, is 40 ft. long by 27 ft. wide. The tower at its base is 30 ft. square, exclusive of the buttresses, and rises 139 ft. from the ground-line to the top of the pinnacles, and will contain a clock and ten bells, the clock to be supplied by Mr. W. Potts, of Leeds, and the bells by Messrs. Taylor, of Loughborough.

Externally the church is to be built with Yorkshire stone, from St. Michael's Mount Quarry, the face to be diagonally tooled. Internally, the stone from a neighbouring quarry, having a light brown tint, will be rubbed to a smooth surface.

Mr. H. Roome is the clerk of the works, and Messrs. W. & J. Milners, of Mirfield, are the contractors. Messrs. Banken & Clough are engaged to do the carpenters' and joiners' work. The cost will be about 20,000*l*.

Window-cleaning.—Glass panes, constantly exposed to the action of the sun and rain, are soon deteriorated, as the potash or soda they contain combines with the carbonic acid of the air. A whitish opaqueness is the consequence of this action; and in order to make the pane return to its pristine transparency, rubbing it with dilute hydrochloric acid is recommended, and then cleaning with moistened whiting. By this means, it is said, glass in an extreme state of decomposition may be completely restored.

ST. MATTHEW'S CHURCH, MOUNT PLEASANT LANE, UPPER CLAPTON.

THIS important church, a plan and south-east view of which we give,* has been during the last two years in progress of erection from the designs and under the superintendence throughout of the architect, Mr. F. T. Dollman, and will be consecrated on Monday next, the 5th of April, by the Lord Bishop of London. It occupies a very elevated site, overlooking the meadows of the river Lea, and will form a conspicuous landmark in every direction.

The plan consists of a nave and aisles; north and south porches; chancel, with north aisle; organ chamber on south side of chancel; tower, and lofty spire.

The nave has five bays longitudinally; the shafts supporting the arches being of red Mansfield stone, with foliated capitals in Bath stone, and moulded bases. Over the nave arches is a range of two-light clearstory windows, the bearing shafts of the roof trusses being of blue Pennant stone. At the west end of the church is a continuous arcading, over which are two lofty windows, of two lights each. At the west end of the south aisle of the nave stands an octangular font in Caen stone, with marble shafts at the angles. The chief panels are filled with the following subjects, referring to Holy Baptism, executed in high relief:—1. The entry into the Ark; 2. The Presentation of our Lord in the Temple; 3. The Baptism of our Lord; 4. Our Lord blessing little Children. The four angle panels are filled with varieties of sculptured lilies. The stem is of alabaster, surrounded by four coloured marble shafts; and the font is surmounted by an elaborate oak cover, on the top of which is the figure of an angel (the emblem of the patron saint of the church), with outspread wings.

The windows of the north and south aisles of the nave are eight in number—four two-light and four three-light, in which the design of the tracery differs in each instance. The whole of the seats in the nave and aisles are of oak.

* See p. 267.

On the north side of the chancel arch stands the pulpit, executed in Caen stone, the design of which consists of a series of arches, with coloured marble shafts and carved capitals and bases, the panels being left open to the floor. The stem is of red Mansfield stone, with four detached shafts in alabaster, and moulded caps and bases. Under the cornice around the pulpit are inscribed the words, "We preach Christ crucified."

The nave and aisles are paved with red and black tiles, laid diagonally, with figured tiles at the intersections of the pattern. Across the chancel arch is a richly-ornamented metal screen, with gates; and over the arch is the text, "I am He that liveth and was dead; and behold, I am alive for evermore. Amen." On the south side of the chancel arch stands the lectern, in oak and brass, the gift of the architect.

The west end of the chancel is elevated three steps above the floor of the nave, and towards the east end, including the foot-pace, are five more steps. The stalls are all of oak and richly carved, and the floor throughout the chancel is paved with encaustic tiles. The arch on the north side of the chancel has an ornamental metal screen, and over the arch is the text, "Thou art the King of Glory, O Christ." Over the corresponding arch on the south side are the words, "Thou art the Everlasting Son of the Father." The whole of this arch is filled with the organ front. At the east end of the chancel, the sanctuary, which is apsidal, has five lofty two-light windows, the whole filled with stained glass, the gifts of residents in the vicinity, the subjects illustrated in which are the principal incidents of interest recorded in the Old and New Testaments. Under the centre window is a reredos, canopied, with the Institution of the Eucharist sculptured in high relief. On the north side of the apse there is a credence, and on the south side three canopied sedilia, forming part of the arcading which is continued round the apse, the plain surfaces of which are filled with red and black diaper work.

On the south side of the chancel, and between it and the tower, is an entrance vestibule for the clergy and choir. Above this is the organ chamber. The ground-floor of the tower is appropriated to a choristers' vestry, above it is the incumbent's vestry, over this the ringers' floor, and higher still the belfry, in which is a full peal of eight very melodious bells by Mears & Stainbank.

The style of architecture adopted throughout the church is that of the end of the thirteenth century. The core of the walls is of brick, faced externally with Kentish rag, and internally with Bath stone ashlar, the whole of the work being bonded together in cement. The spire is of Kentish rag, with Bath stone spire-lights, bands, quoins, and apex.

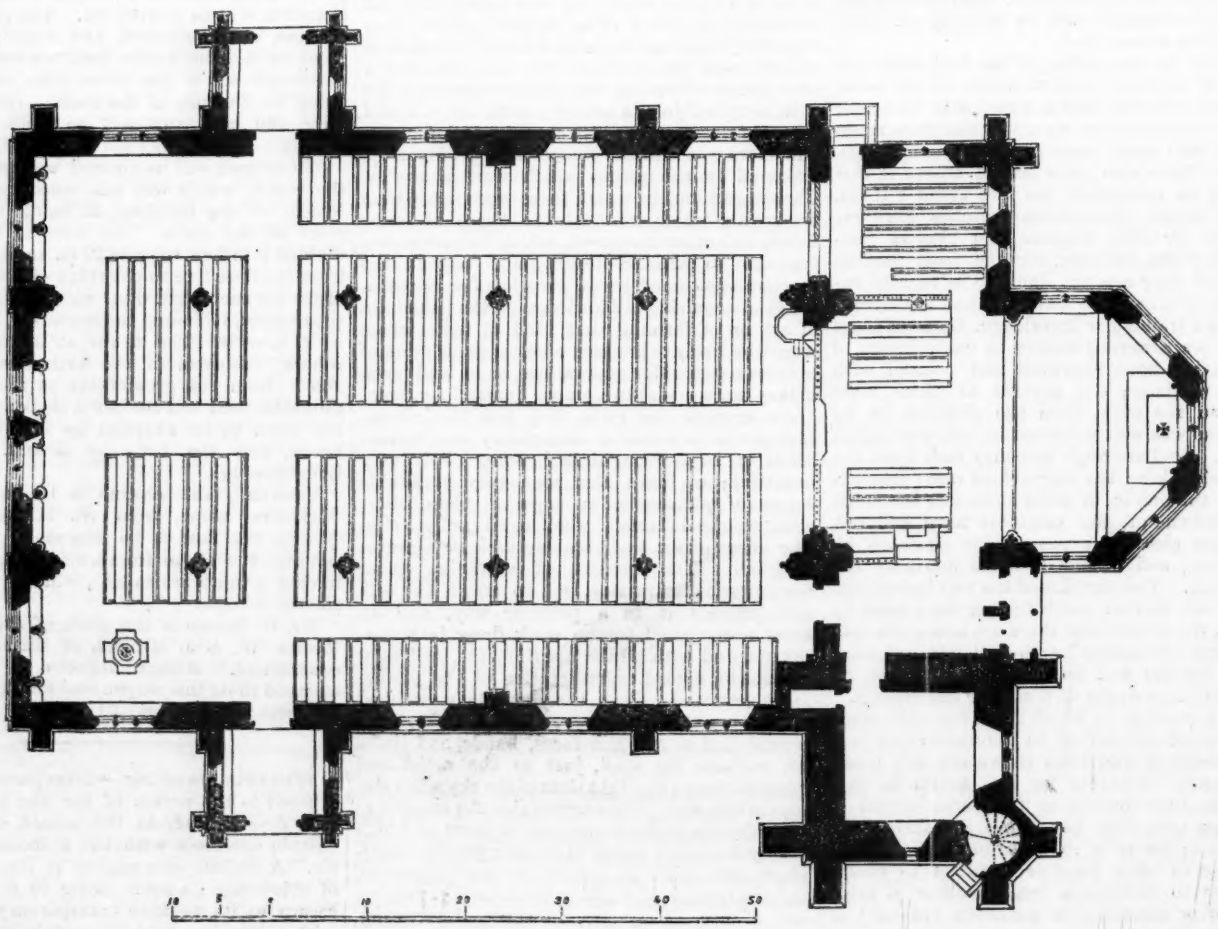
The contractors were Messrs. Myers & Sons. The ornamental sculpture of the nave and chancel, font, font-cover, pulpit, and reredos was executed, from the architect's designs, by Mr. James Forsyth; the metal work by Skidmore, of Coventry; the gas standards and communion railing by Messrs. Johnston, of Holborn; the tiles by Godwin, of Lugwardine, near Hereford; the stained glass by Powell, of Whitefriars; the warming with hot water by Messrs. Weeks; and the organ by Messrs. Gray & Davison. The cost of the entire structure will be not less than 15,000*l.*

The church has been erected entirely by subscription, aided by the personal munificence of residents in the immediate neighbourhood, and has been, from first to last entirely independent of pecuniary aid from any of the church societies, fortunately for the architect and the parish. The church will contain about 750 worshippers, and the whole of the seats will be entirely free and unappropriated.

The principal dimensions are as follow:—

	Ft.	In.
Width of nave between columns	25	1
Width of aisles (each)	13	4
Total width of church	56	3
Length of nave	80	0
Height of do.	60	0
Height of aisles	32	0
Length of chancel	38	0
Height of do.	45	0
Square of tower on ground-floor	21	6
Height of tower to top of cornice	80	0
Total height of tower and spire	180	0

ST. MATTHEW'S CHURCH, UPPER CLAPTON, MIDDLESEX.



Plan.

THE LATER DISCOVERIES IN JERUSALEM.*

THE Damascus Gate is situate in the present north wall of the city, about 1,400 ft. from the north-west corner of the Temple, and is a Saracenic structure flanked by two square towers. Three shafts were sunk here without the gate, near which Dr. Barclay had discovered the superficial remains of a tower which have been previously described in these columns.

Two of the shafts were east, and the third west of the road, and without the gate. The result was the discovery of an ancient arch, to the north of this a flight of steps, north of this again the remains of a wall of rebated masonry of large size. These stones do not, however, appear to be *in situ*, as more modern masonry is visible.

The principal interest attaching to this investigation is the discovery that the ground is here at its ancient level, thus accounting for the finding of superficial remains; and this is proved by the foundations being about 3 ft. below the present surface.

The excavation at the Muristan or Hospital of St. John, on the west side of the city, south of the Church of the Holy Sepulchre, is a continuation of M. De Vogüé's discovery of a wall here, above the level of the ground, forming the east wall of part of the church. Three shafts were sunk in September, one 80 ft. west of the portion of wall above ground, where masonry was found 14 ft. below ground; the second 180 ft. west of same point, masonry found at the same depth; the third, 26 ft. north of the second, masonry being found at a depth of 8 ft. When investigated by trenches joining the shafts, two vaulted chambers were found, the vaults being rough, but the piers of apparently ancient masonry, with large stones and voussoirs. A large tank, 40 ft. by 17 ft., with twenty-five steps, was also found near, 28 ft. below the surface, connected with two other tanks,—the one 68 ft. by 17 ft., and containing a little water; the other not excavated, but in good preservation. These are the largest cisterns yet found outside the temple enclosure, and might be conjectured to belong to the foundations of one of the three towers on this side of the city, where cisterns are described by Josephus as being of large extent.

It is perhaps rather to be regretted that instead of endeavouring to trace the wall at this point to the west, it should not have been explored north or south, as the direction of the part above ground would seem to intimate that it ran in that direction.

The next discovery is one of great interest, being entirely unlooked for, and in a quarter where no previous discoveries have been made. It consists of an underground excavation near the Pool of the Virgin, a well situated on the west side of the Kedron valley, to the south of the Haram enclosure, and at the bottom of the slope of the Temple Hill. Here there has been no trace above ground of ancient work, the well being a late structure, and very rude, forming an entrance to a rock-hewn cave in which the water rises.

The existence of a communication between this Pool and the larger reservoir of the Pool of Siloam to the south, by means of a channel hewn in the rock, was made known by Dr. Barclay, who explored it from both ends, and it is supposed to explain the intermittent rising of the water in the lower pool, as being caused by the syphon-shaped termination of this passage. Lieut. Warren has now added to this discovery that of a larger and more important excavation.

The exploration was commenced under the lowest step of the pool, and with great difficulty, as the rising of the water threatened to drown the workmen already up to the neck in water. Another attempt was then made to explore the passage already mentioned, and at length, leading out of it towards the north-west, two passages were found, the largest being about 50 ft. south of the pool.

This was gradually cleared out to a distance of 17 ft., when a cave was reached, and a shaft, which proved to be 40 ft. in depth, leading upwards from this point.

On exploring this rock-hewn shaft, which has smooth sides, and cross section, of 6 ft. by 4 ft., to a height of 40 ft., a piece of loose masonry was discovered directly over the heads of the explorers, weighing about 8 cwt. The ascent was made by scaffolding, and at the heights of 20 ft., 27 ft., and 38 ft., landings were made with frames, checks being cut in the rock on which they rested.

At the height of 44 ft. the shaft opened into a covering, with a sloping ascent, covered by small stones: being pursued about 30 ft. towards the west, it reached a landing, and the cave went from this point in two directions, one which was impassable towards the south-west, and the other north-west still sloping, following which at a distance of 15 ft. a level plateau was reached, and a passage 8 ft. high by 3 ft. broad. Still pursuing this, a wall was reached, and on creeping through it, the passage was found to rise again at an angle of 45°, for a distance of 50 ft., and as it was very low, it was easy to ascend. At the end of this was a vaulted chamber, 20 ft. long, still running north-west, having a well-cut arch, of semicircular form, the crown being 20 ft. from the ground, and built with large voussoirs. This terminated in a pit about 20 ft. deep, and at this point the passage was blocked up. Two or three curious glass lamps, and two of red pottery, were found here; an iron ring overhung the shaft, and a small pile of charcoal, near which was a dish for cooking food, was also found in the chamber last mentioned. This passage appears to have had some connexion with the ancient aqueduct, but owing to the unfortunate blocking up of the western end, this communication was not traced.

A good deal of importance has been given to the investigations which have been here placed next in order, namely, those in the Tyropœan valley; and although the spot was one where exploration was difficult, as being within the city, still one discovery of extreme interest has here been made, although no one has as yet expressed an opinion as to the real name or use of the building explored.

Six shafts were sunk in this exploration, being all in a line running west from the arch on the west Temple wall. These number in order from the first to the fifth, the first being the most westerly. The sixth is situated between the fourth and fifth. Their object was to find the continuation of the bridge, of which only a fragment of one arch exists, and their result was the discovery that it consisted apparently of one great arch, to which an ascent from the city led with a gentle slope.

Each of the shafts led to the discovery of some ancient work. The first was sunk 21 ft., when the rock was reached, and a polished slab of marble, forming the top of a drain in which a current of water was flowing through the sewage with which it was filled. The sewer was 6 ft. deep by 3 ft. broad, and the stone 21 ft. by 6 ft. The second shaft, 250 ft. from the Temple wall and 35 ft. east of the first, was sunk about 5 ft. to a masonry pier, measuring 3 ft. by 4 ft., in which was discovered the entrance to a cistern beneath, which is, according to Lieut. Warren, of greater antiquity than the pier, and has its bottom on a level with the top of the first sewer. Passages were driven east and west from this shaft, and resulted in the discovery of similar piers at an interval of 12 ft. 6 in., the whole forming a colonnade. The stone was sandstone, well cut and dressed. The cistern is plastered, and has a slightly domed roof. The rock was here found at a depth of 18 ft. below the surface. The third shaft disclosed another portion of the colonnade, and the rock at a depth of 32 ft. Its distance was 216 ft. from the Temple wall. The fourth shaft, 182 ft. from the same, disclosed at a depth of 22 ft. a square rock-cut cistern, 7 ft. below the surface of the rock, as well as a pillar, 1 ft. diameter, and various fragments apparently belonging to the colonnade. The fifth shaft, at a distance of 82 ft. from Robinson's arch, and the sixth, 132 ft. from the same, were investigated with great eagerness, as tending to show the original width and depth of the Tyropœan valley, and the form of the bridge. The fifth shaft discovered a large cistern, but was abandoned at the depth of 25 ft., and a second was sunk close to it, 87 ft. from the wall, which discovered a tank at the depth of 9 ft., measuring 18 ft. by 12 ft. The rock was here only found at a depth of 41 ft. It was proposed to run a gallery from this point to the wall, which would probably throw much light on the appearance of the valley. The sixth shaft disclosed rock at a depth of 30 ft., and an ancient wall of hammer-dressed stones running north and south, and another running east and west, of massive stones, the top at a depth of 26 ft. below the surface.

It is difficult to give an idea of the whole result of these isolated explorations, but it is well explained on paper by Lieut. Warren, and shows that the hill must have been crowded with ancient buildings of large size, including the colonnade, which ran gradually from the west to the level of the great bridge. There can be surely but little doubt that in this we have the remains of the great Xystus, or covered gymnasium, which is distinctly stated by Josephus to have stood here, and the dimensions will fit with the scale to which the entrance to the Temple on this side was constructed.

The next exploration is a continuation of that at the south-east corner of the Temple wall, and is of extreme interest, as showing that the ancient city wall joined the Temple here, and not, as it is often supposed, at the south-west corner. There is as yet no connexion between the exploration in this part and that on the west of the Temple; but wherever a shaft has been commenced, ruins of some kind have been found throughout the whole space immediately south and south-west of the Temple; and there seems reason to suppose that a large amount of ancient building lies hidden beneath the ground in this part.

The city wall, which is here exposed, consists of large stones partly rebated, and runs in a line with that of the Temple for a distance of twenty yards, and afterwards bends towards the west, at an angle of about 45° with its first direction. Close to the Temple wall there appears to have been an entrance. Three shafts were sunk for this exploration, and at the corner of the wall a tower was found, having a face 23 ft. 6 in. in length, and projecting about 8 ft. beyond the wall. This was, no doubt, one of those turrets which, according to Josephus, were placed along the wall. There were also discovered, 15 ft. south of the Temple, the remains of a wall running east and west, abutting on the city wall. Of these walls the courses remained entire to the height of some 40 ft.

It was in this investigation that the Lieutenant found the only remains of ancient writing yet discovered. On the corner stone of the second course (south-east corner of the Temple wall) three letters or marks were found painted in vermilion, apparently with a brush, and the largest some 5 in. in height. The paint when wetted rubs off easily.

There was also found a horseshoe mark on the east wall, about 2 ft. broad at the base of the shoe, and 2 ft. 8 in. deep (supposed to be used in working the tackle in the lowering of the stone) cut in the rock at the foot of the wall. A small earthenware jug was found in a hole in the rock further south. On the north wall also a deeply-engraved letter H was found, and splashes of both red and black paint. These are supposed to be only masons' marks. The H may be a Phœnician "Cheth." A diagram of the stone with the markings will be found in our last number.

The explorations of the ancient aqueduct conveying water to Jerusalem from the sealed fountain and pools of Solomon at Bethlehem, are also of great interest.

A shaft was discovered, south-east of the south-east corner of the "Cœnaculum," in the convent of Mount Zion on the southern slope of that hill, 50 ft. above the present aqueduct. The shaft was of a square section, 2 ft. wide, and at a depth of 16 ft. opened into the ancient aqueduct, which was traced north-east for 300 ft. and 200 ft. west; its appearance was similar to the rock-cut passages of the Triple gate. It was traced to the English school, near which it crossed the modern aqueduct, where it was lost. The course is extremely zigzag. An attempt was made to find the other end of the line at Bethlehem, but without success, though there is little doubt that it led thence probably to the Temple area, which derived the greater part of its water supply from it.

There now only remains one other exploration to describe, that near the Pool of Bethesda or Birket Israel, a large tank to the north of the Haram enclosure, and immediately below the wall, measuring some 350 ft. from east to west, and 100 ft. from north to south.

The tank discovered was entered from a small garden, forming part of the northern end of the Haram enclosure, and entered by a narrow shaft leading into a little chamber 6 ft. square, through which it descends to the bottom of the so-called tank, a depth of 45 ft. in all.

This tank is situated under the Haram enclosure, and proved to be of large size, 63 ft. from north to south, and 57 ft. east and west; the interior of its north wall 24 ft. within the exterior of the north Haram wall, its height 28 ft. It is described by Lieutenant Warren as consisting of nine rectangular bays, formed by

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* See p. 239, *ante*.

four piers; those arches springing from the northern piers are stilted, but the form of those from the southern is not ascertained. The dimensions are irregular. The piers and arches covered thickly with plaster. The arches support nothing, and are 14 ft. to the crown from the floor. The roof is vaulted, and intersects in groins over the bays. The arches connecting the piers with the sides of the vault have cut stone surface ribs. The appearance of the whole is dissimilar to any other of the Haram vaults, and this discovery is most interesting as being the first attempt at subterranean exploration on the north, hitherto entirely unexplored.

The construction is said to be similar to that of many Roman tanks at Naples and Bajæ, as well as at Constantinople.

Such, briefly described, are the discoveries which, in the two last years, with great perseverance and patience, under the most difficult circumstances, in want of men, materials, and money, unaided by any European, except one sergeant of the Engineer corps, and with unskilled and stupid natives, Lieutenant Warren has made. They include the explanation of the true appearance and arrangement of the Temple enclosure. The discovery of a building outside its wall entirely lost, the probable rediscovery of one of the ancient towers, and of a large portion of the city wall, besides the exploration of the aqueduct, and of innumerable tanks, passages, vaults, and subterranean communications.

The work, instead of being regarded as scanty and desultory, thus appears, when summed up, to be as satisfactory as could have been expected when the circumstances of time and place are taken into account, and is interesting on its own account as well as in showing the immense amount of hitherto unsuspected and most valuable information which lies buried beneath modern Jerusalem.

It may not be out of place here to hint in what quarter the researches might with great advantage be pursued, and especially as it has never before been pointed out.

There can be no doubt, when we take into account the description by Josephus and other historians, that Jerusalem, in the time of its greatest prosperity, occupied a space nearly three times as great as that on which the modern town stands; and, as natural features prevented its growth east and west, this space must have extended north and south of the present city. Hence there must be on Mount Zion, to the south of the present city wall, and on the broad plateau on which the New Jerusalem or Russian town stands, a large field for exploration hitherto untouched.

The depth of *débris* on Zion, which is greater than that in any other part of the city, would seem to favour this supposition, as it extends far south of the modern wall. And to the north, remains have been discovered by the Russian consulate, which also intimates that much is here to be found. The advantage of exploration in these parts is, that as they are free of houses and other obstructions, there would be less difficulty and expense in conducting it in these parts; while there can be little doubt that some of the principal buildings of ancient Jerusalem lay without the walls of the city now existing.

It would be most interesting also, and most instructive, to follow the course of the city wall discovered at Ophel, and to trace its course on Zion, for the position and extent of the walls of the ancient city (a subject on which, owing to the entire absence of landmarks of any kind, much useless controvery has arisen) is one of the first and most important points in the rediscovery of Jerusalem, a fact which has been already noticed in these columns.

It is curious also, that while on the south and north so much has been done at the Haram enclosure by Lieut. Warren, still on the west he has not yet attempted any investigation besides that of the Tyropœan bridge; but this is no doubt owing to the great difficulties arising from the number of houses and bazaars which lie against the wall. There was, however, discovered on this side by Dr. Barclay an ancient gateway, almost buried below the present level of the street, which was explored by M. De Vogüé, and has already been described, together with the passage walled up at its eastern end which leads from it. Would it not be possible to investigate this more fully, and even to pass that wall, behind which it is possible a communication with the southern vaults may exist, and perhaps a system of passages and halls buried in the heart of the mountain, of which we have at present no information? It may be remarked that the line of this passage, the entrance to which was known as the Single Gate, before that name was given by the Lieutenant to the entrance discovered by him on the south, abuts on the end of the gallery from the Double Gate.

There is also another point which demands attention,—the discovery of the towers of Jerusalem. Of the great fortresses, Hippicus, Phasælus, Mariamne, and Psephinus, not a vestige remains above ground. It has been supposed that a small tower of utterly different and inferior dimensions, on the west side of Jerusalem, near the gate of Bethlehem, or Bab el Khalil, known as the Tower of David, is the ancient Hippicus; but of this there is no proof whatever, and the rebated stones of which it is built are greatly inferior in size to any found in any of the really ancient masonry, and perfectly different in character. To discover, therefore, the foundations at least, and probably more, of these great buildings is a work to which we look forward with interest. The towers stood on the west wall, where the ground was lowest, and one at least (Psephinus) must have been considerably north of the present town.

In conclusion, it is to be hoped that the work left untouched for ages, and now at length commenced, will not be allowed to come to a stop, when so much has been done, and the promise of so much more been given, through the want of funds, and that thus the credit of this great discovery will be reserved for Englishmen. It is to be hoped that, while no time or money has been spared in bringing the small Roman city, which occupied no place in the history of its time, from under the ashes of Vesuvius to the light of day, a no less active interest and energetic support will be felt in, and given to, the re-discovery of a great city, which holds so unrivalled a position among the ancient capitals of the world.

ON THE ART OF VALUING AGRICULTURAL LAND, AND ON THE INDICATIONS OF THE VARIOUS QUALITIES OF SOILS.*

THERE are probably few subjects within the whole range of the profession which oblige the surveyor to rely so entirely upon his own judgment and knowledge, as the determination of the rental value of agricultural land.

When an estate is to be sold, it may be observed that almost every probable purchaser has his own opinion as to the number of years' purchase it is worth, whilst, for the great body of the public, the actual existing rental must necessarily be taken as the only available basis, until professional advice is obtained to test it.

Again, in valuing house property, it is often possible for those who have little previous acquaintance with a locality to form something like a fair estimate of the rental value of a house, by comparing it with other houses of which the rents can be ascertained; and similar comparisons can often be instituted in the case of building or accommodation land, or almost any description of property depending for its value mainly on position, whilst it is seldom difficult roughly to calculate the cost of any building.

Such aids to the judgment are not to be had when walking over a farm; for, as we all know, the variations in the qualities of the soil are far too sudden and uncertain in most districts, for the rental value of one estate or farm, or even field, to be deduced from that of those near it, whilst the indications of fertility or barrenness, though plain and reliable enough to those who know how to read them, are not usually apparent to the ordinary eye.

The principles on which the amount of rent should be arrived at, and the indications of rental value afforded by land, form therefore, I venture to think, one of the most interesting subjects for discussion by the members of our institution.

The rent of land, we are taught by Ricardo and the political economists, consists of the difference between its "net produce" and the net produce of the worst land which it is worth while to cultivate at all; the term "net produce" indicating what is left after deducting the tenant's interest on his capital, and remuneration for his own labour and superintendence, as well as the actual working expenses. That is to say, that if the produce of a piece of land will barely cover such interest and tenant's profit and expenses, it is just worth cultivating, but only at a nominal rent; whilst, for a more fertile piece of land, the tenant can afford to pay the value of the whole of the increased net produce, though in estimating this it must be borne in mind that the more productive land will involve a larger deduction for interest on capital as well as for heavier rates and taxes, and some increase of expenses consequent on larger crops.

The late Robert Baker, in his edition of "Bayldon on Rents and Tillages," suggests that the rent is to be calculated by estimating the expenses incurred and the profits arising during the whole course of one rotation of crops on different soils; and he very justly observes, that the land valuer must be constantly alive to the changes in the market price of the various articles of produce, and, he might now have added, to the supply of agricultural labour in the various localities. He also remarks, that the cost of cultivating various soils differs so greatly in proportion to the gross produce obtained (especially in these days when, by high farming, the increase of the gross produce depends so greatly on the skill of the farmer and on the investment of capital), that the notion which seems to have formerly prevailed that a fourth or fifth of the money value of the produce will represent the rent, is fallacious in the highest degree. There can be no doubt of the truth of this last remark; the calculations suggested by Mr. Baker are, theoretically, the only sound basis for determining rent, although he has to admit that experienced valuers do not, in practice, rely entirely or even principally upon them. The truth is, that such calculations are liable to be seriously altered by such comparatively slight variations in the estimated produce and expenses, that although many intelligent farmers could apply them to their own farm or even parish, comparatively few men are able to carry them much farther, and the possession of accurate data for their general application implies a degree of experience which renders them almost superfluous.

I think the sound plan is to go carefully into these calculations as to the best and worst qualities of both light and heavy arable and pasture land, so as to form and keep a well settled scale of values, to be filled up on going over each estate.

An actual knowledge of the rates at which the various classes of land are freely hired by good tenants is also, I need hardly say, a most important practical test of the accuracy of such individual calculations, and is gradually acquired by the negotiations incident to the practice of a land agent; but whatever the method by which the valuer fixes in his mind his scale of rental value, what he has to do, in looking at any particular field or estate, is to obtain such indications of its quality as will enable him unhesitatingly to give it its true place in this scale.

The great majority of farmers, I believe, judge entirely, or almost entirely, by the crops, and they usually give surveyors the credit for doing the same. I have often been amused, in walking over a farm in company with the occupier, at being told incidentally, that he did not know what sort of field such a one was, because he had only had it four or five years, and he did not know yet what sort of crops it would bear. The same notion probably has something to do, along with many other causes, with the circumstance that instructions for such a large proportion of valuations are given about the time of year when the land begins to be so covered with crops that it is increasingly difficult and laborious to examine it. If the object be to advise a tenant whether to hire a farm or not, it may be very desirable to judge from the crops what condition it is in; but it may be safely asserted, that the valuer who allows them to influence his judgment in determining the permanent rental value, is very liable to fall into serious error—over-valuing poor land which has been highly farmed, but under some new tenant will some day return to its poverty; under-valuing mismanaged land, which possesses the power of producing good crops with proper treatment. The local knowledge, which is thought so much of in some quarters, and which is founded on the reputation of different farms according to their former crops, is not an affair of judgment at all, but of traditional knowledge, and is totally different in its very nature from the judgment of a surveyor founded on his own observation. The one is useless directly it passes out of its accustomed locality; the other is of general application. The one cramps the mind by accustoming it to trust to traditional reputa-

* By Mr. Philip D. Tuckett, read at the Ordinary General Meeting of the Institution of Surveyors, March 22nd. Mr. Henry Arthur Hunt, Vice-President, in the chair.

tion, which is only the general opinions of the casual observer; the other strengthens the judgment and prepares it for dealing with new subjects as they arise. Few things are so easily acquired with a little inquiry and trouble as such local information on any given point—few things are more difficult to obtain than a good sound independent judgment upon it.

But to return from this digression. Although it is exceedingly dangerous to attempt to judge of the quality of a soil from the crops grown upon it in one particular year only, still many most useful indications may be obtained from its more permanent products, especially from the trees and grasses. Most of our ordinary forest-trees have special proclivities for the various soils on which they flourish, and a careful observation of their growth, and of the hedge-rows, affords information which will seldom mislead. A really thriving elm-tree or hazel cannot be found where there is not a good mixed soil; whilst an abundance of oak and blackthorn are indications of heavy land, and the growth of the trees will generally correspond with the depth and quality of the soil. The alder and the willow are only found in wet places, chiefly by the waterside, and the poplar usually in wet places. On the other hand, coniferous trees prefer the lighter soils, and the Scotch fir grows on thin lands which will produce nothing else except heather; and the beech, though it will grow elsewhere on good land, is usually indicative of a calcareous soil. The sycamore is partial to light or sandy soils, whilst the walnut, and I believe I may say the maple also, usually grow on good mixed loams. The ash is scarcely a sign of any particular kind of land; if it is of rapid growth, it indicates good land; in poor stiff clay it is constantly met with, but is of slower growth and often stunted. The white thorn, if it grows rapidly, is a sure indication of good land; and one never sees a strongly-grown quick-fence on inferior soils.

The various permanent grasses which make up the swards of an old pasture, and even the weeds found in the land, and the character of the growth of both, form most valuable indications of the quality of the land.

This part of the subject is treated in great detail in a long and admirable essay by Mr. Bravender, published in the fifth volume of the "Royal Agricultural Society's Journal," to which I would refer those who desire a greater amount of botanical detail than I can afford space for in this paper.

It is estimated that the distinct species of natural grasses, natives of this country, are in number about 150 or 160, whilst those which are recognised as covering the surface of good old pasture land, number, I believe, only about 18. It is said that a square foot of old pasture or meadow land contains about 1,100 plants, a square foot of water meadow about 1,800, and a square foot of a crop of grass seeds on arable land only about 80. The species of the best permanent grasses being so moderate in number, it is worth while to learn their names, and also to recognize them at sight when in flower.

They are as follows:—

Dactylis Glomerata	Cock's-foot Grass
Alopecurus Pratensis	Meadow Foxtail
Festuca Pratensis	Meadow Fescue
Festuca Duriuscula	Hard Fescue Grass
Phleum Pratense	Greater Meadow Cat's Tail Grass
Anthoxanthum Odoratum	Sweet-scented Vernal Grass (which gives its scent to Hay)
Avena Pratensis	Meadow Oat Grass
Avena Flavescens	Yellow Oat Grass
Cynosurus Cristatus	Crested Dog's Tail Grass
Holcus Avenaceus, or Arrhenatherum Avenaceum	Tall Oat-like Soft Grass
Hordeum Pratense	Meadow Barley Grass
Lolium Perenne	Rye Grass
Poa Annua	Annual Meadow or Suffolk Grass
Poa Trivialis	Rough Stalked Meadow Grass
Poa Pratensis	Smooth Stalked Meadow Grass
Trifolium Pratense Perenne	Perennial Red Clover
Trifolium Repens	White or Dutch Clover
Vicia Sepium	Creeping Vetch.

All really good pastures are composed chiefly or almost entirely of the above grasses; leafy plants take up so much space in proportion to their produce, that they are necessarily wasteful, even when not otherwise injurious. The proportion in which these best grasses occupy the surface is a pretty sure indication of quality.

Mr. Bravender, in the pape r above mentioned, gives several lists of flowering plants and natural grasses, with their several indications; but, with a view to condensation, I shall confine myself to selecting only a few specimens and arranging them into two very important divisions—a few of the principal plants indicating cold wet land, and a few of those found on very dry soils; because, as the valuer visits the land in all sorts of weather and at different seasons, he may be principally dependent on vegetation to tell him whether a field is injured by excessive wet in its ordinary condition, or, on the other hand, whether light land is excessively dry and likely to burn, whilst of almost everything else he can always judge by other means; and because, if one attempts to extend such lists too far, the indications intended to be derived from them become less clear and simple. It is a very curious fact that the herbage of a wet grass field almost entirely changes when it is drained: this is the reason why people used to say that grass land could be easily over-drained, and was often injured by draining. The fact is, wet grass land is injured by draining for two or three years, the old grasses dying off and the better ones not having yet fully taken their place.

PLANTS INDICATING COLD WET LAND.

Agrostis Palustris	Marsh Bent Grass
Aira Aquatica	Water Hair Grass
Aira Cæspitosa	Tufted Hair Grass
Alopecurus Geniculatus	Floating Fox-tail Grass
Carex	Carnation Grass
Centaurea Calcitrapa	Blue Bottle, or Star Thistle
Cnicus Palustris	Marsh Plume Thistle
Hippuris Vulgaris	Mare's Tail
Potentilla Aserina	Silver Weed
Primula Veris	Cowslip
Rhinanthus Cristi Galli	Yellow Rattle
Scabiosa Succisa	Devil's Bit Scabious, or Blue Button
Tussilago Farfara	Coltsfoot.

PLANTS INDICATING VERY DRY LIGHT SOILS.

Agrostis Vulgaris	Common or Fine Bent Grass
Aira Flexuosa	Wavy Mountain Hair Grass
Aira Cristata	Crested Hair Grass
Campanula Glomerata	Canterbury Bells
Campanula Rotundifolia	Heath Bell Flower
Erica Vulgaris	Common Heath, Ling, or Heather
Festuca Ovina	Sheep's Fescue Grass
Galium Verum	Yellow Ladies' Bed Straw
Onobrychis Sativa	Wild Sainfoin
Thymus Serpyllum	Wild Thyme.

In addition to the *species* of grasses, a good deal may be learned by the character of their growth. On good land the blade grows full and broad; on poor wet land it often looks stunted; whilst on thin sandy soils it is apt to be thin and wiry.*

NOTES AND CIPHERS.

The other day, for want of something better to do, or for the reason why a well-known young man in the poem "whistled as he went," namely, "for want of thought," we looked over a couple of hundred ordinary replies to an ordinary invitation, "So-and-so solicits the honour of So-and-so's company," and "So-and-so will be happy to come," or he won't be, according to circumstances, or she won't be, according to gender. Lazily turning over the glossy sheets, and almost sent into dreamland by the constantly-recurring formula, two things struck us, and one of these things was this thing,—that amongst the respondents there were forty educated men and women who said, "we *will have* the pleasure of accepting the polite invitation." Speaking from knowledge of those who thus write, one would say there surely must be some way of defending this mode of expression (a parson, a painter, a poet, a peer, and a parliament-man are amongst those who use it; and it is even printed on cards and sheets of paper in blank, to save the time of the overwhelmed, and sought for); but, for the life of us, we cannot find it. They do accept, they are accepting; invitation is the present act of inviting, and that present act they accept; they do not intend to do it to-morrow, they do it when they write. Quite properly they "will avail themselves of" an invite, "will have the pleasure of coming," or "will accept your hospitality;" but as to the invitation, they do then and there accept it; there is no "will" in the case: so, to misapply Longfellow's line,—

"Trust no *future*, howe'er pleasant."

The other thought that forced itself upon us was one adverse to the present universal adoption, even by those who have historic crests, of what are called Monograms, but which are for the most part nothing more than idiotic and contorted groups of letters, often illegible, and oftener still wholly unsuggestive of the information intended to be conveyed. What is really a monogram? A *monotheist* believes in one God; a *monologue* is a speech uttered by one person; a *monodram* is a dramatic performance by one actor only; a *monosyllable* is one syllable; and a *monogram* is one letter or a character done at one writing; that is, with a continuous line, though compounded of several letters—*monos*, one, and *gramma*, a letter. One might as well call three or four stones leaning against each other a *monolith* (*monos*, one, and *lithos*, a stone), as three or four distinct letters, because gloriously jumbled, a monogram. Still, what's in a name? A nose by any other name would smell as well; so pass by the name and look at the thing itself. The great majority of these ciphers are altogether unintelligible. There is a proper system which, if followed, would make them always understandable, at any rate, by those who know the system. But in practice, as a rule, there is no rule, and confusion worse confounded results.

Thus, on pious Mary Anne Dickon's envelope we get three letters, very blue (suggestive of "deep read"), lovingly entwined, but whether they are meant to suggest M. A. D, or say D. A. M., is no more easily to be divined without extraneous knowledge than you can understand from the so-called monogram of our wild friend Trimmer, christened Richard Andrew, whether he means it to convey R. A. T. or T. A. R. An astute doctor of our acquaintance, a strict monogamist, has twisted his R. and his T. and his D. about till they resemble nothing so much as the cipher of the Grand Turk; and one of the most refined and dignified of ladies, high in the social scale, assures every one at the top of her notes, and in violent tones (of colour), that she is L. O. W.

However, this is but a fashion, and we have the comfort, if it be one, of believing that long before people have left off saying they *will* have the pleasure of accepting what by that saying they *do* accept, they will return to their proper crest if they have one, and make their cipher intelligible if they have not.

* To be continued.

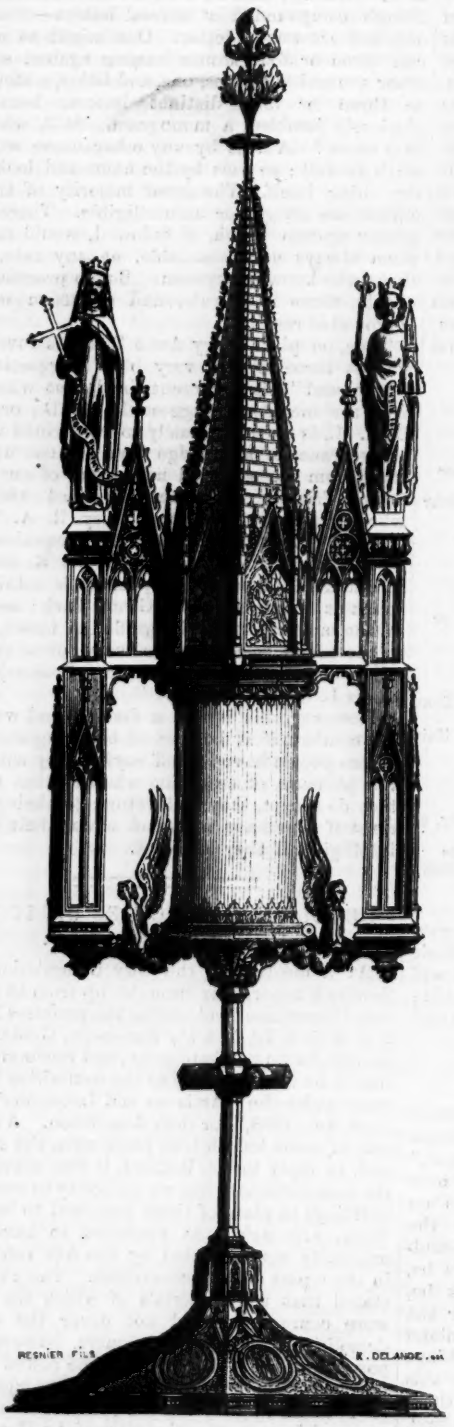
DEMOLITION OF HOUSES UNFIT FOR HUMAN HABITATION.

At a meeting of the City Commissioners of Sewers a report was brought up from the Sanitary Committee condemning the premises Nos. 1, 2, 3, 5, 6, 9, 10, and 11, Sun-court, Golden-lane, as unfit for human habitation, and recommending that it be referred back to the committee to take steps under the "Artisans and Labourers' Dwellings Act, 1868," for their demolition. A discussion of some length took place upon the subject, and, in reply to Mr. Bedford, it was stated that the commissioners had no authority to erect new buildings in place of those proposed to be taken down, although that appeared to have been originally contemplated by the Act referred to in the report of the committee. The chairman stated that the materials of which the houses were composed would not cover the cost of demolition. The commissioners, however, had power to make a rate of 2d. in the pound for the purposes of the Act; but that would be equivalent to such a large sum that, unless they were engaged in very extensive alterations, it would be unnecessary. Mr. Baylis, the solicitor to the commissioners, stated that there was power given to charge the land with the expense incurred, and in reference to some observations made by hon. members that they could not understand the provisions of the Act, remarked that the measure had been so much altered in committee as to make it a jumble, and some local authorities had given up all idea of putting it in operation. Mr. Gover asked, "What was the meaning of a house being unfit for habitation—whether it was dangerous to the public, or simply in a filthy state owing to the habits of the inmates?" Replying to the question, Mr. Haywood, the surveyor, read his report upon the state of one of the houses. Its general condition was a follows:—

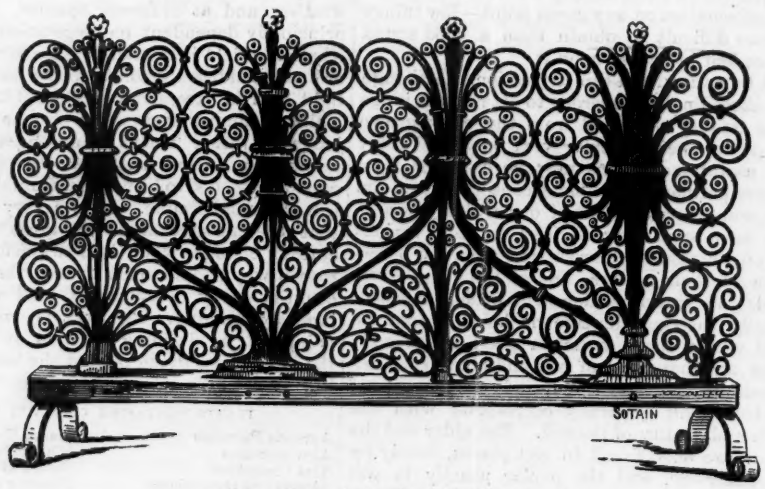
"The floors and ceilings throughout were considerably out of level. Some of the walls were saturated with filth and water, and others were broken and fallen down. The doors, window-sashes, and frames were mostly rotten and in a very dilapidated state; the stairs were also dilapidated and dangerous, and if a person were to jump upon them they would very probably give way; the fastenings to the doors were in nearly all cases broken or torn away. The roof was leaky, and admitted the rain. There was a closet used in common by the inmates of this and of seven other houses in the court, and it appeared by the report that it was in a bad state, owing to the drippings from the cistern. The only water supply was from this cistern above the closet."

In the result the report was adopted, and the houses will accordingly be demolished.

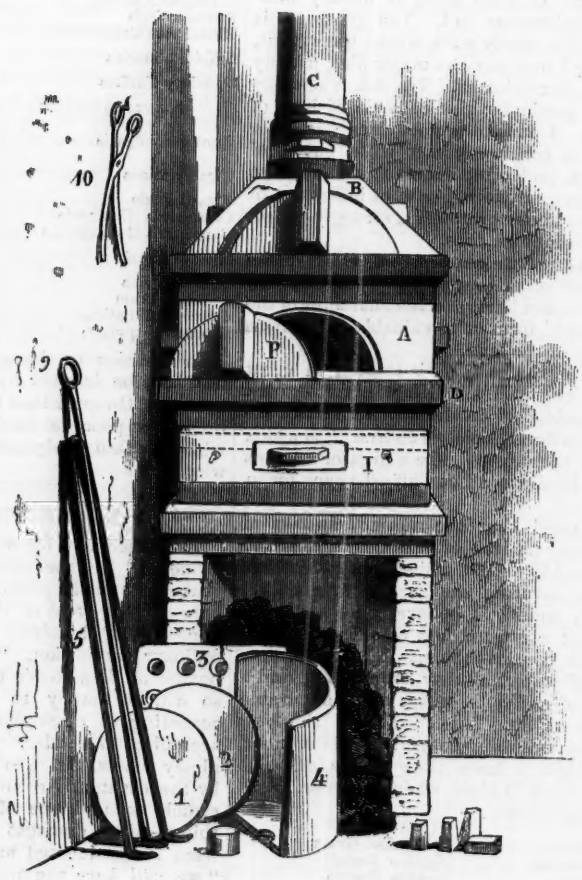
THE INDUSTRIAL ARTS.



Reliquary of the Treasures of Basle, Thirteenth Century.



Iron Gate of the Twelfth Century.



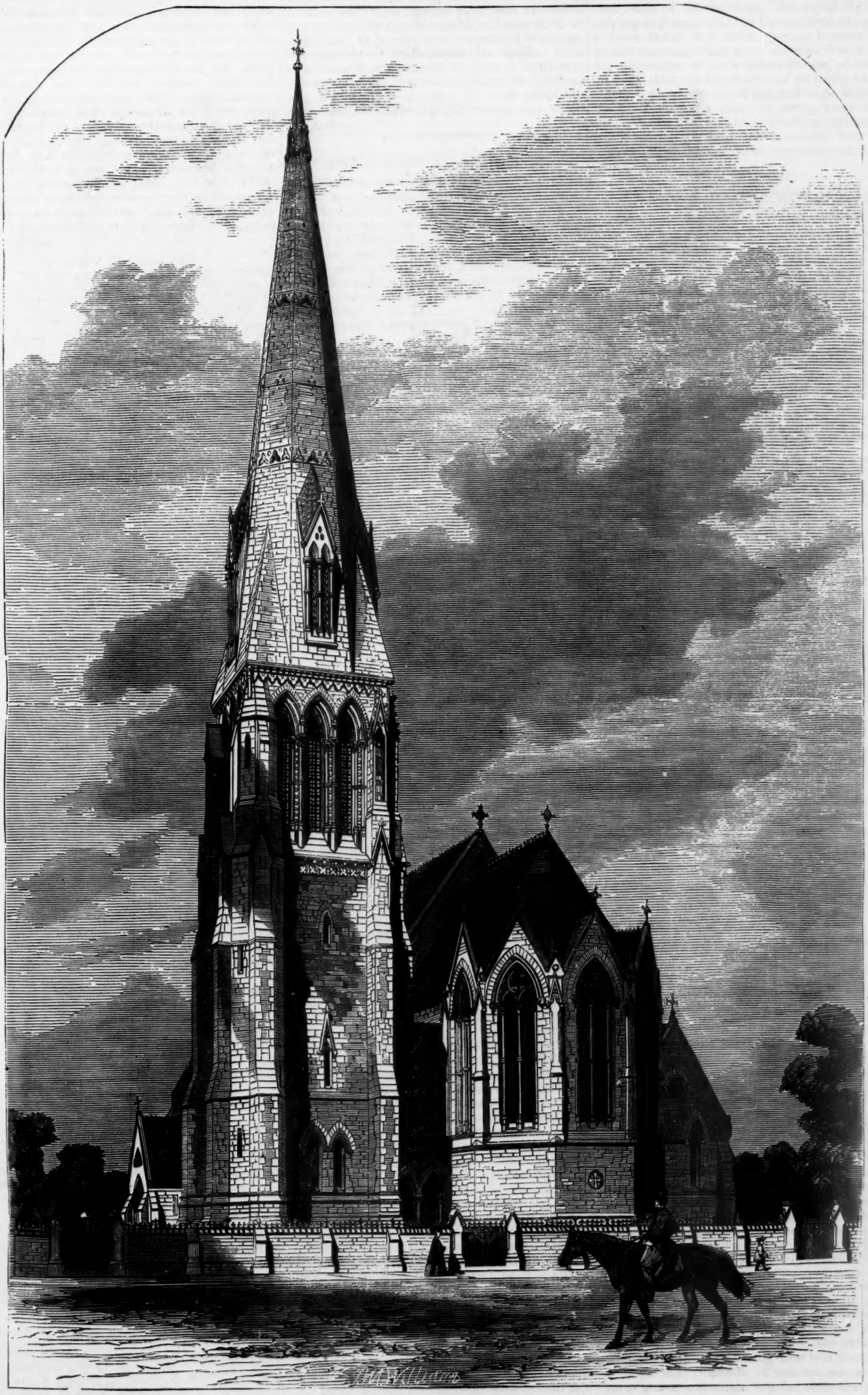
An Enameller's Oven.

SCULPTURE IN FLORENCE.

"DEATH AND HONOUR," a group commemorative of those who fell in the late American war, recently executed in Florence by a young artist, Mr. Pierce Connelly, announces such talent and power of imagination as certainly should not pass unnoticed. Setting aside the accidental and local in his subject, the sculptor treats it in the purely abstract and moral aspect, or, we may say, as an allegory illustrative of an enduring truth. It is "Honour arresting the Triumph of Death," which is, in fact, the subject here presented in a group of five figures, Death, himself, being mounted on a horse, and with masterly skill in the treatment of a composition so difficult; the number of figures and serenity of action demanding so much both of inventive power and technical science. Besides Death and Honour, the other personages introduced are also allegorical representations of abstract forces, namely, Courage, Perseverance, and Strength, who are all cast down before the career of that king of terrors, but not alike subjected to him. Strength, who seems to have first fallen, still holds his broken sword in his hand; Perseverance desperately grasps the scythe with which Death is mowing down his victims; Courage, though prostrate and actually beneath the lifted hoof of the conqueror's steed, rears himself with gallant effort, and aims a blow with his battleaxe at the enemy about to ride over him; Honour alone, the figure whose heroic grace and expressive action at once arrest attention, with helmed head, but otherwise unarmed, and calmly triumphant, "severe in youthful beauty," opposes the headlong career of that shadowy king, and tears down the banner which, as well as the scythe, are the symbols of conquest borne by him. As for this personified Death, so rarely represented in Christian art save in forms that are grotesque and revolting, we see here an aged warrior, of wiry and sinewy frame, terrible, not hideous, in aspect, with crowned head, and body partly clad in close-fitting chain-armour, his actions indicating the sudden check of an onward impetuous career, and the indignant astonishment excited by unlooked-for opposition, strikingly expressive and dramatic.

This group has not yet been executed on a large scale, but is intended, as theme and composition obviously require, for the colossal. It seems to us to fulfil the high conditions of sculpture in illustrating the inner and moral reality of things, the principle that abides permanent amidst the shifting varieties of time and place.

Proposed Infirmary at Rotherham.—The building committee of the proposed new Infirmary at Rotherham have work before them, upwards of ninety sets of plans having been forwarded to the honorary secretary in reply to the advertisement offering prizes for the best designs.



ST. MATTHEW'S CHURCH, UPPER CLAPTON, MIDDLESEX.——MR. FRANCIS T. DOLLMAN, ARCHITECT.

[See p. 262, *ante*.

ROYAL COMMISSIONERS' REPORT ON THE BUILDING TRADE-UNIONS.

THE eleventh and final report of the Royal Commissioners, who were appointed to report on the working of trade-unions, is now in the hands of the public. The Commissioners seem to have paid especial attention to the unions connected with building trades. With the officers of these societies they commenced their investigations, and examined no fewer than thirteen of the officers connected with the carpenters', joiners', masons', plasterers', bricklayers', and painters' societies. They also examined thirteen gentlemen connected with the various branches of the trade, but who had no connexion with the union except so far as the working of them on the trade are concerned. The Commissioners in their report say under this heading:—

"EFFECT OF UNIONS ON TRADE.

(51). The effect which unions have had in impeding the development of trade, whether by simply raising prices, or by diverting trade from certain districts, or from this country abroad, is a matter excessively difficult to determine. (52.) There are many rules and practices of which the effect must of necessity be to enhance the price of commodities by raising the cost of production. But whether such rules and practices are not far less effectual than is commonly supposed, is a question incapable of solution without an investigation extending to a great variety of subjects besides that directly submitted to us. (53.) The industries on which trades' unions may be supposed to have had an effect must be divided into two classes—those in which foreign competition cannot, and those in which it can, materially interfere with the productive industry of the country. (54.) In the first case, there is nothing *a priori* to prevent the operation of trade-unions from raising the cost of commodities until the rise is checked by the diminution of consumption. Such an instance is afforded by the various trades in building. We are disposed to think that the operation of trade-unions may have tended to enhance in these trades of late years the cost of production, and that houses and other buildings might have been somewhat better and cheaper at the present time had not trade-unions interfered so extensively and so vexatiously with the proceedings of the employers. It does not necessarily follow that they have raised wages in those trades, and improved thereby the condition of the workman; the contrary, in the long run, is more probable. (55.) The other class of trades—that class in which production may be interfered with by foreign competition—is far more important. But we are compelled to admit that we have been unable to arrive at any very definite solution of the problem whether or not trade-unions have had of late years a mischievous operation in this direction."

They frequently single out the evidence given in connexion with the building trade as worthy of remark as well as to show the working of the unions. We give a few of the many examples. Speaking of the monopoly of the work of a district, the Commissioners say:—"A society of brickmakers claim an extent around Manchester in every direction equal to an area of 120 square miles as their peculiar district, within the limits of which they permit no bricks to be made except by Manchester union men, nor any bricks to be used except those made within the district. They accomplish the latter object by means of an alliance with the Manchester Bricklayers' Union, the members of which will not set any bricks not made within the above-named district."

Referring to the interference of trade-unions with the employers, the Commissioners say, "A union of bricklayers at Manchester, interfered to insist that a Manchester builder, constructing a railway station at Bury, should take at least half the men from Manchester; whilst the National Association of Operative Plasterers interfered to require an employer whose head office was at Manchester (although he had a branch office at Bolton) to pay Manchester wages for a job at Bolton." Again, the Commissioners are told by Mr. Conolly, who is a member of the Operative Stone Masons' Society, that the rules

"Are made for men, not for masters. We do not take masters into the account at all in the arrangement of the matter; we merely look upon them as men who step in with their capital, and who want to get the greatest profit they can out of their capital, whilst we want to get the greatest profit we can out of our labour; and we find that, by an arrangement of this sort, without depriving society of the advantage of the skill of its members, we can gain our object."

Mr. Hughes and Mr. Harrison sign a dissent which they term "conclusions from evidence." They point to the great extent and increase of unionism, and to the improved character of unions of late years. Well-established unions, they urge, rather diminish the frequency and disorder of strikes, and are, on the whole, beneficial in their operation. It is affirmed that the workmen generally are not opposed to the use of machinery. State interference in the matter of apprentices is deprecated. It is difficult to estimate the effect of unions on foreign trade, but it is admitted that it is sometimes mischievous. Masters' associations are held to be open to the same objections as those of the men. They recommend that unions should be capable of suing and recovering at law contributions, arrears, and fines against their own members. Unions ought not to be capable of being sued or dissolved. It is not deemed expedient to change the position of trade-unions as clubs. It is also deemed inexpedient to give a legislative character to Courts of Conciliation or Arbitration, but to give facilities for their establishment and for enforcing the agreements made under them.

ANTIQUITIES AT WEYMOUTH.

THERE has been lately exposed by the action of the sea encroaching on the land, about one mile and a half south-west of Weymouth, a circular construction of very ancient date, made of well-puddled clay, about 6 ft. or 7 ft. in diameter, and about 2 ft. deep, having two rectangular openings abont 1 ft. wide, one to the south-east and another to the south-west. These openings were lined with slabs of Kimmeridge shale, about 2 in. thick on edge, and across these was laid a smaller slab. The south-eastern opening, however, had a third slab on edge midway between the two others, either to divide the outlet into two, or assist in supporting the top or covering slab. The clay forming the outer edge of the pan was sloped from the rim about 2 ft. outwards, till it reached the level of the ground. May it not have been an ancient salt-pan? About fifty yards off are remains of Saxon masonry, also a number of fragments of ancient British and Roman pottery, and articles used by the ancient Britons. R. T. SMITH.

THE PROPOSED LAW COURTS' SITE.

AT the second meeting of the Thames Embankment Committee appointed by the Society of Arts, Lord Elcho being in the chair, Sir Charles Trevelyan brought forward, as a written statement under six heads, his views on the advantages of the Thames Embankment site for the Law Courts. Mr. Edwin Field combated each of them *seriatim* with his usual vigour. Mr. Street took the view that we have felt compelled to adopt, that the change would not be a wise step. In the course of replies to Sir Charles Trevelyan, he said it must be remembered that on the Embankment site there was a fall of about 32 ft. from the Strand, which was a very serious difficulty; whereas, on the Carey-street site, by a slight alteration in the level of Carey-street the whole fall from front to back had been reduced to about 12 ft. From an architectural point of view he did not conceive that the building itself, or London in general, would be improved by the Embankment site being selected in preference to the higher one in Carey-street. They all knew the great effect which was produced by the upper part of St. Paul's standing up from the surrounding buildings; and his own opinion was that, looking only to his own reputation in time to come, it would be quite as much consulted by putting the Law Courts on the Carey-street site as on the bank of the river. He believed that the general impression as to the grandeur of Somerset House was derived much more from the view of the quadrangle from the Strand than from the river front. He was convinced that it would be damaged by any higher building adjoining it, which would be necessary in the case of courts of justice. There were one or two points which he had hoped would have been touched upon, one being the question of the railway-station, which, as sanctioned by the Act of Parliament, would be right across Surrey, Norfolk, and Arundel streets. It would be necessary to make the station a part of the building, in order to preserve anything like a good architectural effect; and there would be the danger of inconvenience arising from the smell of the burning coke, and from vibration. Then, if a rising road were constructed under the building, as was suggested, a great deal of valuable space would be wasted. His own opinion was, that the proper way of making an access to the building itself and to the Strand from the railway-station would be to have an open thoroughfare at the end, and that would at once get rid of about half the additional space. If they built close up to the Temple, they would have to pay for interfering with the ancient lights. He arrived altogether at the conclusion that the superior height of the Carey-street site gave it the advantage, and the fact of the building being slightly encumbered by other erections he did not consider at all a drawback. On the contrary, it rather tended to make the perspective more picturesque, and to increase the apparent scale of the building. He would further only say at present that the Carey-street site gave a much better and wider opening towards the Strand than the other site; and also that it had the advantage of wide thoroughfares all round its four sides, so as to allow of all traffic to the offices being kept out of the building; whereas Sir C. Trevelyan's plan, by doing away with roads on the east and west points, would necessitate all the carriage traffic coming into the internal quadrangles, and so increasing the noise very greatly.

THE VOLUNTARY ARCHITECTURAL EXAMINATION.

AT the last meeting of the Institute of Architects the chairman announced that no application had been received from any candidate for the Voluntary Architectural Examination of 1869. In reference to this subject, the following resolutions of the council will be submitted to a special general meeting, to be held on the 5th of April next:—

1. That passing the Voluntary Examination ought to be followed by advantages such as will promote the advancement in life and in the profession of the Student.
2. That each Candidate who passes the Examination should receive a formal acknowledgment of his having passed.
3. That passed Students in the Class of Proficiency should become, *ipso facto*, Students of the Institute, without further payment, for as many years as they have paid guineas.
4. That the names of Candidates who have passed in the Class of Distinction be notified to the Board of Examiners for District Surveyorship Certificates, when such Candidates present themselves for Examination before that Board; and that their Examination Papers be also forwarded, if the Board requires to see them.

AN ENGINEER FOR CALCUTTA.

THE Justices of the Peace for Calcutta are seeking to obtain from England a properly qualified Engineer, and propose to offer these terms:—

"1. Salary to be Rs. 600 per mensem, with an annual increase of Rs. 100 per month annually, up to a maximum of Rs. 1,000 per mensem.
2. His passage to India to be paid by the Justices.
3. That he be not engaged for any definite period, but that, in the event of his services being dispensed with before the expiration of three years, he receive three months' notice of the termination of his engagement, and that in that case his passage back to England be paid by the Justices.
4. That the engineer have the option of throwing up his appointment by giving three months' previous notice.
5. That, in the event of his doing so, he shall not be at liberty to accept any other employment in India."

The Calcutta *Engineers' Journal* combats the propriety of the last condition, urging that the return of his passage-money is as much as the Justices should require.

THE NEW NORTH-EASTERN AND THE LONDON AND NORTH-WESTERN RAILWAY STATION AT LEEDS.

FROM plans and specifications which were designed by Mr. T. Prosser, of Newcastle, the architect to the North-Eastern Railway Company, a new station has been erected in Leeds for the joint use of the North-Eastern and the London and North-Western Railway Companies. The station has been raised on arches, which cover about seven acres and a half of ground, and are computed, including the station itself, to have consumed about 18 millions of bricks. The building is situate near to Wellington-street, and is for the most part composed of iron and glass. In the mid-space are two elongated buildings, which provide waiting and refreshment rooms, booking-offices, &c., which will be used jointly by both companies. Facing the entrance from the street an oval-shaped building has been raised; to the left of which will be the booking, left-luggage, and parcel offices. These departments are separated by a passage 14 ft. wide and 75 ft. in length. There are two docks for passenger traffic, one belonging to each company. That set apart for the London and North-Western contains four lines of rails, with platforms on each side 25 ft. wide. The platforms are 630 ft. in length, and are covered for a distance of 302 ft. The dock owned by the North-Eastern Company has also four lines of rails, with platform accommodation to the extent of 940 ft. in length, the roofing over which extends to a distance of 513 ft. There are also several lines laid down, which will be used for goods

traffic. The wide spans and the altitude of the various ridges give the structure an imposing appearance. The greatest span is to be found on the side set apart for the London and North-Western Company at a point near to the booking offices, where it is not less than 92 ft. across. Over that part of the station used by the other company there is a span of 68 ft.

The contractors for the whole of the roof-work were Messrs. Butler & Pitts, of Stanningley; whilst Messrs. Thompson & Co. contracted for the other work.

INDUSTRIAL PARTNERSHIPS FOR CABINETMAKERS.

SIR,—Returning to the position of the English cabinetmakers, in support of my hypothesis of industrial partnerships producing a great and beneficial change, one much desired by art patrons and all philosophic minds, there are numerous proofs of its success, and in businesses where there is not one tithe of the incentive necessary for its adoption as there is in the cabinet trade, where the workman is intrusted with material that is expensive, and if not used judiciously causes enormous waste, and also if not conscientious he can escape a great amount of physical labour by leaving undone what is necessary to really sound, good work, but which cannot be discovered when put together except by some accident. And there is another thing which should be considered: the workman has to invest his capital in tools, which are very expensive, and when he has got the stock he has to keep that stock up, in doing which there is scarcely a week elapses that it is not necessary to replace some article lost or broken. They cost, in the first instance, about 25*l.*, and he must insure them,—the employer will not do it for him. Every expense in the manufacture of an article of furniture, except the material and shop-room with bench, falls upon the workman. There is no wonder he is anxious to be on his own account as soon as possible. It recurs to the reflective mind that the profits of business, either as employer of labour or as dealer, would be more usefully and beneficially employed if more equitably distributed. There are too many drones. I consider the idea fallacious that education, as it is often expressed and generally understood, will be the harbinger of that happy millennium when no protests or complaints will be heard, and they will be only connected with history. Education awakens the faculties to perceive the anomalous position the owner of that intelligence holds, if he is a worker, relative to the capitalist, and creates the desire of greater equality, greater according to intelligence. There is proof in abundance in the many commercial houses that admit their ablest assistants to a share in the profits: it simply sinks into an act of expediency, to prevent them commencing on an independent basis. Selfishness is an inherent principle in man; it grows with his growth; but physical science teaches us that we can make use of Nature's irrevocable laws, and wield her powers to our every requirement and happiness. Social science, if properly understood, would lead to the same goal. My views may appear utopian to some of your readers, but a case in point will not be out of place, which came under my notice a short time ago, and which carries conviction with its statement. Mr. Charles Goodall, printer and lithographer, of Leeds, entertained his workpeople at a repast, and he took occasion to express his opinion with respect to industrial partnerships, which he adopted two years ago, giving 12½ per cent. of net profits amongst all workpeople employed on the works, the sole proprietary and management remaining in his own hands. He stated his high opinion of the principle, where much care and skill was required of the operatives; he unhesitatingly said increased prosperity had manifested itself as the result of increased attention from the *employés*. They had also the fact that there was not an unsteady man in the whole place, nor any person who was not a credit to them; and he believed the moral tone was above the average. Now this is a fact, and not theoretical. We enact laws to prevent our fellow-man from injuring us physically, and bind ourselves by the same to him. Why not socially? The neglected apprentice is a social wrong done at the expense of the community, and of the man individually. There are years of labour lost, as often he has to learn his trade when a man, and often never does learn it. Why should not the State step in and look to this cankerworm.

WM. WARREY.

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the last meeting of this society, March 24th, Mr. J. Boult occupied the chair (in the absence of the president), and Mr. Picton exhibited a number of pencil sketches of various churches and other buildings taken during a tour in the South of England, and of buildings in Norwich, Lincoln, and other towns. He also offered to give a prize of two guineas for the best sketches from existing buildings made by any of the students during the summer recess.

The chairman drew attention to the fact that the time for sending in contributions to the Architectural Exhibition in London was drawing to a close, and hoped that the members of the society would endeavour to contribute largely.

Mr. G. F. Deacon, C.E., then read a paper "On the Æsthetics of Construction," of considerable importance and interest. Referring to diagrams illustrative of the various systems of iron bridge construction in use, he argued that those forms which indicated most obviously the lines of equilibrium of pressure, and showed most clearly the manner in which the structure performed the work intrusted to it, were also those in which the lines were most pleasing to the eye. The box and plate girder, where these lines were not obvious at all to the ordinary spectator, he characterized as completely devoid of beauty. The straight lattice girder was not in reality much superior, but had a lighter effect to the eye. The bowstring girder, and the principle of two inverted parabolic ribs, adopted by M. Ruppert in his proposed designs for bridges for the Austrian and Asia Minor Railway, showed the visible lives almost coincident with the actual lines of compression and tension; and in the most beautiful of all forms, the suspension-bridge formed by the simple catenary curve, the coincidence was complete. By a table giving the relative weight of material, &c., required in these various forms of construction, he showed that in general the æsthetic beauty of lines of construction was in direct ratio to the economy and stability of the structure. From these premises he proceeded to apply the same considerations to more strictly architectural structures, representing especially that the Gothic style of architecture above all others carried constructive and artistic beauty hand in hand. A lengthened discussion followed, in which Mr. Picton, Mr. Beloe, Mr. Statham, and the chairman took part.

ARCHITECTS' ACTIONS.

LAMBTON *v.* ELLIOTT.

THIS cause was heard at the Newcastle County Court, before Judge Blanchard. Mr. T. Forster appeared for the plaintiff, Mr. George Lambton, architect, Newcastle; and Mr. Joel appeared for the defendant, Mr. Elliott, grocer and draper, Choppington. In September last, the defendant engaged the plaintiff to prepare plans, &c., for a house, shop, and warehouse he proposed building at Choppington. Plans were prepared, tenders advertised for, and the lowest, amounting to 1,213*l.*, was accepted. The defendant, however, did not wish to expend so much money, and the plaintiff, at his request, altered the plans so as to reduce the cost to 940*l.*, and he made other alterations, reducing the cost to 589*l.* Ultimately the defendant wrote to the plaintiff stating that he did not require any further services from him. The plaintiff then sent in his bill for 47*l.* 7*s.* Mr. Charles Francis Johnson, engineer, who had been in the employment of Mr. Lambton, gave evidence as to the drawing of the plans and justness of the claim. On the part of the defendant, Mr. Joel pointed out that the defendant gave plaintiff instructions to prepare plans for a building, the cost of which was not to exceed 600*l.*; but the plaintiff prepared plans for a building to cost twice that amount; and the defendant came to the conclusion that the sooner he got rid of Mr. Lambton the better. He contended that the plaintiff had caused the expense, and brought the loss upon himself. His Honour said there was no doubt the plaintiff had been put to a great deal of trouble and expense. Both parties were to suffer in the action; and, after a great deal of difficulty, he had come to the conclusion that the plaintiff was entitled to recover. He gave a verdict for the plaintiff for 25*l.*

RECENT EXCAVATIONS IN ROME.

THE last pit dug for the British Archæological Society of Rome on the line of the wall of Servius Tullius between the Cœlian and the Aventine, is close under the cliff of the Aventine, and in this pit are now visible two of the subterranean chambers of the *Piscina Publica*, with the *Specus* or conduit of the *Aqua Appia* (made about three hundred years before the Christian era) quite perfect. It is 6 ft. high, with a triangular head, and 2 ft. or rather more wide. The earth has been cleared out of it for some yards, and several English gentlemen have been into it. This remarkable *Specus* had not been found perfect in any of the previous pits; the lower part of it only had been found, and those not accustomed to the subject could not well understand it, but now it is perfectly clear and distinct. This *Specus* is carried upon the Wall of Servius Tullius, built of large blocks of tufa as usual, and is partly cut out of the wall itself, which is now plainly visible and in a cleaner state here than it was found in the other pits across this valley. This most recent excavation is considered by all who have seen it a demonstration of the truth of Mr. Parker's observations. Two years ago he said that this wall and this aqueduct must have crossed the valley at this point; he was ridiculed by the head Roman antiquaries, and their German and French allies. Visconti the Roman, Dr. Hurzon the German, and Rosa the *employé* of the French Emperor, all agreed that Mr. Parker was entirely wrong, and called by the name of "impudent conjectures" his observations, which were in reality the result of long experience in the modern science of archæology, which is the opposite of the old school of local antiquaries such as we had in England in the days of good King George III., and such as still are the antiquaries of Rome, few of whom have ever been twenty miles from the place in which they were born. Whereas the modern science of archæology is grounded on *comparison*, like comparative anatomy. An experienced archæologist can compare the small remains in one place with more perfect remains of the same kind and of the same period elsewhere. He can describe a whole building or an entire ancient fortification from some small remains only, just as an experienced comparative anatomist can describe a whole bird or a whole animal from a single bone. It was in this manner that Mr. Parker was able to see what the primitive fortifications of Rome must have been, and to find remains of them everywhere as soon as he could obtain permission to dig and search for them.

THE PRIZE WORKS AT THE INSTITUTE OF ARCHITECTS.

IN March last the Council offered the silver medal of the Institute to the authors of the best essays on certain subjects; a Special Prize of 10*l.* for the best essay on the application to modern architecture of moulded, shaped, and coloured bricks, and terra-cotta; the Soane medallion (and a possible 50*l.*) for the best design for either a town hospital or a club-house; Mr. Hope's prize of ten guineas for a design for a theatre in accordance with modern requirements throughout, and in harmony with the style of architecture which prevailed during the thirteenth or fourteenth century; and Mr. Tite's prize of forty guineas for a design for the treatment of the river front and existing terrace of Somerset House, in connexion with the embankment road. They further offered the medal of the Institute, with five guineas, for the best illustrations of any building at home or abroad erected before the year 1700; besides book-prizes for students only. Here surely were strong inducements for study and work. Such offers are open doorways through which the student may walk early to a certain amount of distinction, which, though it may operate in only a small circle, will unquestionably help him on his upward way. The response is not adequate, still it is superior to that made on some previous occasions. Thus, for the Institute medal and five guineas there are four exceedingly creditable sets of illustrations of old buildings: Hatfield Hall, marked with a ring; the Abbey d'Or, Herefordshire, marked "Faith;" Wingfield Manor House, "Truth;" and the church of St. Mary Overy, Southwark, "*Nemo*." For the first, a ring, the council recommend the prize; for the other three a Medal of Merit each. The set of drawings which they recommend for the Soane medallion and 50*l.* under conditions, is a design for a club-house, French-Italian in style, very cleverly set forth in a mode of drawing that is recognizable, and marked "*Fest.*" The design is disfigured by broken pediments, and the inevitable urn, but is in other respects very praiseworthy and deserves the prize. A set of designs marked "Austerne" has a tower that, considering the period and purpose, is simply ridiculous. The set marked "Hope,"—"Scotty" in character,—is Geometric in style, and not bad of its kind. The gentleman who marks his design for a hospital "Ah!" must have made the exclamation when he saw how completely he had spoilt the work by his tower and overhanging turrets. Mr. Tite's munificent offer meets with no response. For Mr. Hope's prize the Council recommend the drawings for a Gothic theatre, marked "As you like it." It has a high wooden roof, a lofty tower, the main entrance close to the doors to pit and stalls, and is otherwise altogether unsuitable and useless. To set students striving to design Gothic theatres is not the best way to improve our vernacular architecture. An essay on the Revival of Italian Architecture, marked "*Medio tutissimus ibis*," is recommended for the Institute medal; and one on Terra-cotta, with the motto "Wait and Hope," for the 10*l.* premium. The author of the gateway signed "*Per vias rectas*" well deserves the Student's Prize of books.

The Proposed Restoration of New Shoreham Church.—The project for restoring the parish church of New Shoreham has been abandoned by the parishioners, the funds promised and collected (about 2,500*l.*) being insufficient to warrant the General Restoration Committee in commencing the work. In consequence of this, the whole of the funds in the hands of the County Committee has been returned to the several subscribers. It is much feared that this old church will shortly fall into utter ruin.

THE TRADES MOVEMENT.

Bricklayers in the Potteries.—Some weeks ago the bricklayers of the Staffordshire Potteries and Newcastle made an application to the builders for an increase of wages, to the amount of a farthing an hour, and a reduction of working hours to the extent of half an hour a day. The demand for increased pay was rejected, and, a reference to arbitration failing to effect the settlement of the difficulty, it became necessary to call in the services of an umpire. Mr. Davis, the stipendiary magistrate, who has before done good service to the building trade by acting as umpire, was again unanimously chosen as final referee. Mr. Davis heard the statements of the representatives of both the men and the masters, and put a number of questions for the purpose of informing himself thoroughly upon the subject in hand. At the close of a prolonged inquiry he intimated that he did not think he should be disposed to make any change in the hours, as the men who were the movers in the matter preferred the present hours to a change such as the employers proposed, and the latter seemed to have no strong desire for a change. With respect to the question of wages, he would give it careful consideration.

Strike of Masons.—Two hundred masons in the employ of the Duke of Portland, at Welbeck, have just struck work. A large number of dependent labourers have, consequently, been thrown out of work. The masons seek an increase of wages.

Amalgamated Society of Carpenters and Joiners.—The annual tea, *soirée*, and ball of this society has taken place at the Freemasons' Tavern, under the presidency of Mr. Thomas Hughes, M.P., who was supported by Mr. Edmond Beales, Mr. Mundella, M.P., Mr. Harrison, Professor Beesly, Mr. Baxter Langley, and other gentlemen. Upwards of 400 ladies and gentlemen sat down to tea. The chairman, in his opening address, said he heartily congratulated the society upon the progress it had made during the past year. He heard that the society's funds had increased upwards of 2,000*l.*, that 700 new members had been gained, and that fifteen or sixteen new branches of the society had been established during the past year. That was a very remarkable result. Those present knew that a Royal Commission had been inquiring into the conduct of trade societies. He himself was a member of that Commission, and there was another member (Mr. Harrison) in the room. The general result of the Commission was that the whole of the Commissioners came to the conclusion that the law of this country was unfair to trade societies, and must be altered. He would earnestly impress on these societies the paramount importance of taking care that their members produced the best work it was possible for them to produce. They ought to insist upon the establishment of arbitration courts for the settlement of questions between employers and their workmen. Until such courts were established the great labour question could never be solved. Mr. Applegarth, the secretary, then gave a report of the society's proceedings during the past year, and referred to the report of the Royal Commission, of which he strongly complained. He did not believe that any Parliament would sanction the four conditions which the Commission recommended should be imposed upon trade societies. What those societies wanted was the protection of their funds. They had a right to have their hard-earned savings properly invested. Let arbitration do its work, but as to the rest, let the working men alone. Other gentlemen addressed the meeting.

A HINT TO HOUSEHOLDERS.

OWING to the present custom of shooting the domestic coals into house-cellars through holes in the pavement, we Londoners—and I presume the inhabitants of other towns are fellow-sufferers with ourselves,—have to endure a considerable inconvenience and annoyance which might as well be spared us.

I am not about to complain of the coalheavers; on the contrary, I look to them as my especial helpers in the project of amendment I contemplate. My notion is, that any householder who allows the pavement in front of his house to remain disfigured and soiled by the dust that has fallen from his coals during the process of delivery, commits an act of injustice on every passer-by;—on men, through the outrage done to their sense of propriety and cleanliness; on women, by the same, and the addition of damage done to their dress. Now, for years past I have adopted a very simple plan, by which I save my own feeling of self-respect, and also all risk of annoying other people. Over and above the little *honorarium* the men who deliver coals at my house receive for their trouble, I give them 6d., and a couple of buckets of water, and get them to wash down the pavement before they drive away. They are very glad of the job, and I and my household are equally well satisfied.

Do try to persuade some, if not all, of your readers to consult their neighbours' convenience by following the example of

ONE OF THE PUBLIC.

ANALYSTS' DIFFERENCES.

I SHOULD be glad to obtain, through the *Builder*, information on the following matter:—I observe in the *Builder* of some months back, it is stated that the epidemic which broke out at Terling, in Essex, had been traced to originate in the contamination of the well-water by sewage, and that analyses showed this water to have contained sewage. A similar account of sewage contamination to water supply and epidemical outbreak is also given of Guildford. I want to know where such analyses, together with Government inspector's report, can be obtained, supposing such to have been made, which I understand to have been done.

In looking over a number of analyses of water and of sewage, each by a different analyst, I find that scarcely any two of them agree. I do not mean that where two analysts each test the same water or sewage, or water and sewage drawn from the same source and at the same time, the result given by each is not correct; but I refer to the different modes of expressing such result: for instance, the standard quantity for analysis is taken at one gallon of 70,000 grains by one analyst; another takes 100,000 lb. or parts, and so expresses the result of analysis. So much for the quantity of substance operated upon.

In stating the actual analyses, one operator gives the quantity of earthy and alkaline salts, &c., and organic matter, simply as organic matter, and without any information as to its nature: this is usually expressed in grains.

Another gives the quantity of alkaline and earthy salts, &c., and instead of organic matter simply, he shows it as organic carbon, as organic nitrogen, and as ammonia, or nitrates: this would be in parts of the whole instead of grains per gallon.

Perhaps another would add the quantity of oxygen absorbed from permanganate of potash; and so on with each analyst. I cannot call to mind more than one or two who express the results similarly. I sometimes observe that another chemist will maintain that the process of analysis by incineration and permanganate for determining organic matter, the process of analysis by other chemists, is quite erroneous, and that a small quantity per gallon of one kind of organic matter—nitrogenous,—is detrimental to health; whereas a comparatively large quantity of another kind of organic matter—carbonaceous, or non-nitrogenous,—may be taken in water without hurt!

I have some knowledge of chemistry, but must confess I frequently cannot understand, and can draw no useful inference from analyses as frequently given, especially when two chemists operate upon the same water!

Can you give me any information why this is so, and how the public are to judge of results? And can you further inform me (or how such information may be obtained) the maximum amount of organic impurity,—whether as carbon, as nitrogen, or as ammonia,—that should be permitted in water for domestic purposes.

W. R.

THE CHANGES IN ST. SWITHIN'S CHURCH, LONDON.

THE restoration (as I suppose it will be called) of St. Swithin's Church, in Cannon-street, is so extreme an instance of the treatment which some of our City churches have met with at the hands of modern architects, that it would be well if public attention could be directed to it.

The St. Swithin's of a few months ago was a building in the style of the Roman Renaissance. The St. Swithin's of to-day is a building in no particular style, reminding one of the mongrel Gothic of the earlier years of James I., examples of which may be seen in certain colleges at Oxford; buildings which are only redeemed from ugliness by the venerable aspect which the blackness and decay of the stone they are built of has impressed upon them in a degree to which their age does not entitle them. If the parishioners of St. Swithin and their architect are such puristain Gothic that the sight of a Classic church is intolerable to them, let them pull their church down and rebuild it in the Gothic style. To convert a Classic church into a Gothic one by any other means is impossible, as their recent attempt helps to prove.

But before we resolve either to destroy or convert our old Classic buildings, let us consider whether (even if it were possible) either one or the other measure is desirable. The architecture of the Roman Renaissance in England has an *historical* interest of its own, apart from its artistic character. Whether it be of itself admirable or not, it forms the subject of a very important chapter in the history of our national taste; and it performs one of the main functions of art, by reflecting the moral aspect of the period during which it prevailed.

Although, therefore, we may not wish to see Classic churches built at the present day, we ought not to wish to obliterate the memory of the Renaissance by destroying or disfiguring all that it has left us. We may think it wrong to imitate these buildings, but it requires no sacrifice of principle on our part to let them alone. We may prefer Wordsworth and Tennyson to the poets of the last age, but there is a place in our library for Pope notwithstanding, and our library would be imperfect without him.

The experiment of Gothicizing Classic churches has been tried elsewhere in London, and in one case with great splendour, and with a degree of taste and refinement which are wanting at St. Swithin's; but even there it is not successful, because it has attempted an impossibility.

There is great danger of this fashion becoming prevalent, unless it is checked at once by public remonstrance. It is rumoured that the parish authorities of the principal church in the City are thinking of filling with tracery the windows which were built for their predecessors by Sir Christopher Wren.

I, for one, confess that I can contemplate with equanimity the idea of a window without tracery, although I sign myself

A GOTHIC ARCHITECT.

VALUATION OF RATEABLE PROPERTY.

A BRIEF summary of the contents of the Government Bill to provide for uniformity in the assessment of rateable property in the metropolis has been given in our pages: the other Bill of the Government, applying the same system to the rest of England, has now been issued. The County Valuation Boards, which are to determine the percentage or rate of deductions to be made from gross value in calculating rateable value, are to consist of representatives of the assessment committees of the county, two to be elected by each committee from its own body, one to be a justice if there is a justice on the committee, and where a borough has a separate court of quarter sessions, or contains a population at the then last census, of not less than 10,000, the town council may elect one of their number or one of the borough justices to be on the Valuation Board. The members of the Valuation Board are to hold office for three years and be re-eligible. The Board is to have power to form committees of its own members, and may delegate to a committee all or any of the powers conferred on the Board by this Bill. The Bill provides that where the overseers of a parish, in making their valuation list, raise the gross or rateable value of a hereditament or insert one not previously assessed, or where the assessment committee do so (otherwise than in determining an objection), notice shall be sent to the person rated. Appeals against decisions of assessment committees are to be heard before the County Court Judge, an appeal lying to a superior court on a point of law. The valuation list subject to annual revision for alterations, new buildings, or reduction in value, is to be, during its three years' existence, conclusive for county rate, poor rate, &c., and every rate levied on the basis of value; for house-tax and income-tax; and for determining the qualification of jurors and guardians, and under the Acts relating to the sale of excisable liquors. The overseers are to make a new valuation list every third

year, and the Valuation Board may then revise the table of deductions to be made from gross value in determining the rateable value, but the stated maximum is not to be exceeded.

LETTERS PATENT FOR 1868.

MR. GEORGE SHAW has drawn up a condensed analytical list of letters patent for inventions granted and provisional protections applied for during the year 1868. From this summary of inventive effort we subjoin an indication of the progress discernible in materials and appliances connected with building trades. In all, there were 3,991 applications. Of this large number 11 related to improvements or inventions connected with sewers, drains, and cesspools; 13 with making and sweeping roads; 38 appertained to wheels for railway and other carriages; 4 to docks, breakwaters, and submerged works; 84 to furnaces and consuming fuel; 116 to railways, locomotives, and railway carriages; 185 to steam engines and steam boilers; 33 to artificial fuel, matches, and splints; 6 to baths; 4 to bells and bell-hanging; 2 to castors for furniture; 32 belonged to latches, hinges, and springs for doors; 5 to fenders, fire-irons, and fire-guards; 39 to nails, bolts, screw-nuts, and rivets, and machinery for manufacturing the same; 21 related to the processes of sawing, planing, boring, &c., stone and slate; 54 to sawing, planing, and turning metals, wood, &c.; 79 to telegraphs, signals, and intercommunication in railway trains; 4 to surveying instruments; 14 to drawing, painting, and exhibiting pictures and photographs; 31 to windows, sashes, shutters, doors, and fencing; 3 to floors and flooring machinery; 52 to tunnels, bridges, arches, and portable and other buildings; 21 to lime, brick, and other kilns and coke ovens; 10 to artificial stone, plaster, and cements; 30 to bricks, tiles, and clay-pipes; 13 to glass manufacture; 19 to blinds, curtains, and shades; 43 to stoves, grates, fire-places, kitchen ranges, and culinary apparatus; 30 to warming and ventilating buildings; 11 to gas-burners; 33 to gas and water meters and regulators; 43 to cocks, taps, and valves; 31 concerned pipes and tubes for steam, water, and gas, and joints for the same; 21 related to water-closets and urinals; 16 to hydraulic machinery for raising and distributing water; 5 treated of the preservation and preparation of timber; and 2 apportioned to coffins, hearses, and preservation of the dead. Satisfactory as this amount of activity thus indicated may be, it appears trifling to that fermenting in men's brains on the other side of the Atlantic.

ACCIDENTS.

AT Leeds the wall of a railway hotel in process of demolition has fallen upon a number of workmen, crushing one of them to death, and seriously injuring others.

During a furious storm in Devon and Cornwall numerous trees have been rooted up and chimneys blown down, and the pinnacle of Totnes Church, Devon, was blown down and fell through the roof. Several narrow escapes were reported, but fortunately no lives were lost. All the trains upon the South Devon and Cornwall line were delayed, and telegraphic communication by the United Kingdom Company was entirely suspended.

At Dudley, a large engine stack, recently erected upon the works of Mr. Thomas Jones, at the Buffery, has fallen. The catastrophe was, however, expected, and care was taken that no person should be within reach of the falling *débris*. It appears that most of the mine had been gotten before Mr. Jones commenced his tenancy, and the stack was built under the impression that the portion near the furnaces had, as is the general rule, been undisturbed. When the stack, which contained at least 100,000 bricks, began to show symptoms of falling, mining operations were commenced on the opposite side to the works, so that it might not fall across the boiler or works, and this end was accomplished before it was too late.

News of a serious accident comes from Norfolk. In consequence of an unusually high tide, nearly 50 ft. of the east bank of the Ouse has subsided into the river. This took place about half a mile from the parish church of St. Germans, King's Lynn. It was feared that the prevailing rough weather might cause the tide to flow through the breach and inundate the surrounding country; but the bank was secured in time.

The new extension of the Midland Railway from Cudworth to Barnsley, which is near its completion, it is thought will not be opened so early as was intended, owing to a portion of the embankment giving way. The line crosses the main outlet which carries away the sewerage from the town to the river Dearne, which, at the time the branch was being constructed, was arched over by an inverted culvert. This appears to have given way, and caused the embankment to slip in several places for a distance of twenty yards.

On Wednesday morning, an accident occurred at the New Palace Club-house, King-street, St. James's, by which several persons were injured. It appears that the club-house in question is to be repaired, and while the workmen were pulling up a ladder over the balcony, a height of 20 ft., the stone balustrade suddenly gave way, and fell with a crash, bringing the workmen with it. They were picked up and placed in a cab, and conveyed to St. George's Hospital, where one, Patrick Quin, was found to be most seriously injured. The others were sent home.

THE ARCHITECTURAL EXHIBITION.

IT should be remembered that the annual exhibition will be opened on Wednesday, May 5th next, and that all drawings must be sent to the galleries on Monday or Tuesday, the 5th and 6th days of April, after which days no drawings will be received.

The council, in their last report, say:—

"The council have regarded with great interest the improvement that they hope will be effected by the Royal Academy in regard to the space proposed to be given to architectural subjects in their new building: they do not forget that the Architectural Exhibition was originated in a great measure on account of the inefficient and unworthy manner in which architecture was represented on the walls of the Academy; and should the Academy agree to give to architecture a fair and equitable proportion of their walls, they would gladly enter into an arrangement by which the present Architectural Exhibition might be merged into the annual one of the Academy; but until such arrangement is made they feel bound, in the interest of the profession, to do their best to continue the present exhibition."

PORTLAND CEMENT.

HAD the ship-builders at Liverpool been conversant with the properties of Portland cement, or informed as to the best mode of using it, they would not have rejected that of the quality described by "Manufacturers." In using cement of a high specific gravity, in contact with iron, great care is necessary. A slow-setting cement is not absolutely required for coating the inside of iron vessels, as the conditions under which it must be used are most unfavourable. Iron is obviously an unsuitable material for receiving a covering of cement; and the difficulty in using it increased by the interposition of a coat of red lead, with which it is usually painted. At this season, and in the necessarily confined hold of a ship, the process of cement-setting must be slow; in summer weather, or with a more favourable atmospheric temperature, the difficulty in question might not have arisen.

To apply Portland cement to the inside of an iron ship, in the most successful manner, it is necessary to mix up the cement with the smallest possible quantity of water, and to allow the mixture to remain for several hours before applying it with the trowel. It is difficult to prescribe any exact time it should be so left, but it must be used before the initial set has begun, so as not to prejudice its ultimate induration.

Heavy Portland cement—when obtained by an excess of fuel and not from a preponderance of clay—is naturally slow-setting, and in a ratio with its weight will be its final hardness. It is—at present at least—practically impossible to combine in Portland cement the two qualities of quick-setting and maximum strength. Where protection to heavy cement joints is necessary, from water or other disturbing causes, careful engineers usually apply an internal facing of one of the quick-setting Roman cements.

Before the introduction of these cements Smeaton used plaster of Paris to protect the composite mortar (Aberthaw lime and puzzolana) joints of the Eddystone Lighthouse. That eminent engineer considered good mortar indispensable, and insured its quality by strict personal attention to its preparation. Eddystone Lighthouse mortar cost 3s. 8d. per cubic foot.

Heavy cement should be submitted to the greatest amount of mechanical pulverization, and should be rejected unless it will pass through a No. 40 (1,600 meshes to the square inch) gauze wire sieve. In America the engineers impose the No. 80 gauze for the natural cements of that country; but to subject a heavy Portland cement to that test would add greatly to its cost. There can be no question of the impolicy of using imperfectly-ground heavy cement; to do so is sheer waste.

HENRY REID.

SEWAGE IRRIGATION.

Banbury.—The experiment of applying the sewage of Banbury to the land succeeded so well last year that a large portion of the farm in the occupation of the local board has been laid down for irrigation in the course of the winter; and at a recent meeting it was resolved to prepare still more: in fact, the whole of the land to which the sewage can be applied is to be made ready to receive it. Mr. Hawkes, a successful practical farmer, and member of the board, said they would not be doing their duty to the ratepayers if they left a foot of their land without the benefit of the sewage. A large field is to be appropriated this year to the growth of root crops—mangold, turnips, and parsnips—to test the powers of the sewage in the production of these esculents.

Leamington.—The Leamington Local Board have accepted an offer from the Earl of Warwick to take the whole of the sewage of the town, for a term of thirty years, and dispose of it by irrigation on his lordship's estate, at a distance of from two to three miles south of Leamington. The Local Board are to lay down the requisite mains, construct the necessary works, and pump the sewage to a given point on the estate, and in return the Earl will pay the Board 450*l.* annually for the sewage.

CHESTER CATHEDRAL.

THE tenders for the restoration of a certain portion of the cathedral have been sent, and are as follow; the quantities were taken out by Mr. J. S. Lee. Mr. G. Gilbert Scott, R.A., as our readers know, is the architect:—

Barnsley (Birmingham)	£24,546 0 0
Hughes (Chester)	23,571 0 0
Holme & Nicholl (Liverpool)	22,955 9 0
J. & W. Beanland (Bradford)	22,366 0 0
Wood (Worcester)	21,633 0 0
Thompson (Peterborough), accepted	21,263 0 0

THE ROMAN WALLS OF DAX.

WE understand that the fine Roman walls of Dax are again in danger. Some ten years ago Mr. C. Roach Smith exerted himself against a threatened injury to them, and contributed towards preventing it. The Emperor formerly interposed; but now the Prefect, to carry votes among the little shopkeepers, has consented that the walls shall be broken through. They are, or were, *the most perfect* in the North of Europe. Surely some of the numerous antiquarian societies of which England now boasts will bestir themselves to prevent the destruction of so important a monument.

PLYMOUTH GUILDHALL COMPETITION.

SIR,—Knowing that you are always ready to lend a helping hand to the correction of abuses, I venture to call your attention to the terms of the above competition advertised in your two last issues, with the hope that a few remarks from you may induce the committee to reconsider their instructions. The premiums offered appear, at first sight, *liberal*, but, on perusing the "instructions," we actually find that architects are requested to furnish designs and estimates for buildings intended to cost about 25,000*l.*, in return for which they have a *chance* of obtaining one of the three premiums; and it is stated in the "instructions" that "competitors must look *solely* to the premiums for their remuneration, as the Town Council will not engage to employ any of the architects whose plans may be accepted." I think this requires no comment, but I should hope that no member of the profession will compete under such conditions.

PROVINCIAL.

DOINGS ON THE METROPOLITAN DISTRICT RAILWAY.

SIR,—In your last issue I observe your correspondent "S" gives a true statement of the shortcomings of the Metropolitan Railway.

I am an unfortunate instance,—as follows. On the 25th of March a ticket was given me one station short of the one asked for, full fare having been taken. On arrival at my destination I was seized by the authorities for an excess fare, and detained some time; then taken before the station master, in consequence of my refusal to pay the excess, having already paid full fare for the distance travelled: however, after all this bother, seeing I was determined not to pay, I was then liberated upon giving my address.

N. W.

DISSENTING CHURCH-BUILDING NEWS.

Camden-road, London.—A memorial stone of a Presbyterian church which has been built in the Camden-road, and which is called after the name of its locality, has been laid by the Duke of Argyll. It was not a foundation-stone, for the building is entirely completed: it was only the last stone on the outer basement, which was laid in its place to commemorate the completion of the work. The new church is in the Italian Gothic style. The interior, with its centre nave and small side aisles, has rows of short, though massive, stone columns. The church in which the congregation formerly met used to be in the Caledonian-road, but a site having been obtained from the Marquis of Camden, it was determined to build the present structure. The schools were first erected and for a time used as a church till the completion of the edifice adjoining.

Northampton.—The Grafton-street new Baptist chapel has been opened for divine service. Mr. Ingham was the architect, and Messrs. Clark & Heap were the builders. The new structure stands on the site of the old chapel; but its breadth, from north to south, is considerably larger, the waste ground at the back being included. The building consists of the chapel, an adjoining vestry, lower and upper school-rooms, the latter of which being also used as a lecture-room, baptistery, two schoolrooms, and a basement or cellar, with fire-place and every convenience for providing tea. The chapel is 45 ft. by 45 ft. The lower school-room is 25 ft. by 29 ft.; and the upper school-room or lecture-room is 45 ft. by 25 ft. On the south side of the chapel is a commodious gallery, in which provision is made for a harmonium and choir. Whilst attached to the chapel, the school-rooms are externally of a different character, being much plainer, and without any marked design. The entrance to the school-room is from Harding-street. The chapel fronts Grafton-square. It will seat nearly 500 persons, and the total cost will be 2,000*l.*, including the purchase of the ground and similar items.

Bradford.—The new Wesleyan chapel now being erected in the Girlington-road, is intended to afford sittings for 840 persons, and to cost about 4,000*l.* Five class-rooms are obtained in the basement upon the south or Willow-street side, which, owing to the fall of the ground, admits of light and ventilation; the basement-floor also contains a room for the heating apparatus, and an entrance, lobby, lavatories, &c. The ground-floor has in front three entrances and vestibules which can be used conjointly for the body of the chapel and the galleries, or for each part independently. In the rear are vestries for the minister and deacons, and staircases leading downward to the class-rooms, and upward to the organ-loft and galleries. Separate entrances are also provided to the minister's vestry and the class-rooms. The fronts of the galleries are curved in a semi-circular shape at each end, and the ceiling of the chapel is also curved and divided by ribs into panels, which will be further enriched by moulding and plaster decorations. Amongst a limited number of local architects, Messrs. Andrews, Son, & Pepper were the successful competitors.

Chesterfield.—The foundation-stone of the United Methodist Free Church, Chesterfield, has been laid. The church is in course of erection in Marsden-street, and when completed will be capable of seating about 850 people. The church will be a brick building, and will cost 2,500*l.* Mr. Simpson, of Nottingham, is the architect; and Mr. R. Maw and Mr. J. Glossop, of Ambergate, are the contractors—the former for the building, and the latter for the woodwork.

Burscough.—A new Wesleyan chapel has been opened for divine service at Burscough Bridge. The building is calculated to seat about 500 persons. It has been erected by Mr. T. Bridge, builder, Burscough, from plans drawn by his son, Mr. T. Bridge, jun., architect. The chapel is built in the Early Pointed style of architecture, the material being brickwork, of different colours, in ornamental bands, &c., and coloured arches to the various windows and doors; other ornamental brick and stone work being used throughout the building. The windows are chiefly coupled lancets, excepting in the various gables of nave, transepts, and chancel, where triplet windows are used; that to the nave being more decorated. The chief entrance to the chapel is by a porch of ornamental timber construction, surmounted by a gilded wrought-iron finial. At the junction of the roofs of nave and transepts rises a spirelet to the height of 50 ft. from the ground, terminating in a gilded wrought-iron finial; and the several gables have also finials. The ceiling is divided into bays by arched principals, with pierced tracery work in the spandrels, and terminating on wood carved corbels. The nave measures 46 ft. by 30 ft.; transepts, 42 ft. 6 in. by 18 ft.; and chancel, 16 ft. by 8 ft. The entire cost of the building is about 950*l.*, about 600*l.* of which have already been raised.

Darlington.—The church in Northgate, erected by the United Presbyterians of Darlington, has been formally opened. The edifice consists internally of nave and aisles, with an apse at the east end. The entrance is by a double doorway in the west gable, leading into a vestibule. Over this vestibule is an end gallery. At the south-west angle of the building is placed the tower and spire. The upper stage of the tower is octagonal, having the cardinal faces occupied with the belfry windows, and the intermediate faces with buttresses, terminating in carved capitals and pinnacles. The spire, which is approaching completion, will have one tier of spire lights, and be terminated with a carved finial and ornamental vane. The total height of tower and spire will be 120 ft. Over the entrance-doors in the west gable is a four-light window, consisting of a two-light and two single-light windows, enclosed under one hood mould. The window is filled with stained glass, by Mr. Tait, of Stirling, the gift of a member of the congregation. The north and south flanks are occupied by two-light windows, finished each with a small gablet rising above the eaves. The walling is of blocking course from Haughton Bank quarry, and the Ashlar dressings, window tracery, &c., are from the same quarry. Internally, the roof is divided into three spans, and supported by cast-iron columns. The nave roof is wagon-headed. The principal timbers are exposed to view, and stained and varnished, and the panels between are plastered and coloured a light blue. The pews are of deal, with bench ends and sloping backs, and are, together with all exposed woodwork about the building, stained and varnished. At the east end are placed vestries, and stairs to basement. In the basement are placed a large school-room, session-house, class-room, heating-place, &c. The style is Geometrical. The contractors for the various works are Messrs. Duck, Todd, Atkinson & Son, Hope, Johnson, and Harrow, all of Darlington. The heating apparatus has been supplied by Messrs. Lewis & Adams, of Middlesborough. The cost of the building, including site, &c., will be about 3,600*l.*; and it has been erected from the designs and under the superintendence of Mr. John Ross, of Darlington, architect.

SCHOOL-BUILDING NEWS.

Birmingham.—The memorial stone of the new Workhouse Schools for boys, about to be erected on land adjoining the workhouse at Birmingham Heath, has been laid by the chairman of the Board. Messrs. Martin & Chamberlain are the architects, and Messrs. Jeffery & Pritchard the contractors.

STAINED GLASS.

Haslington Crane Church (Lancashire).—A series of three windows have been placed in the apsidal chancel of this church. The style of the edifice is Early English, and the windows are severally composed of two lights and quatrefoil in tracing. The centre window contains figures of St. Peter and St. Paul, with their usual accessories, beneath floriate canopies, the quatrefoils being filled with sacred emblems and figures of angels with inscribed scrolls. The two side windows contain, in each opening, two medallions, in which are pictured several subjects. A fourth window, being a memorial, is occupied by one subject extended over two lights, "Christ blessing little Children." These windows are from the works of Messrs. R. B. Edmundson & Son, of Manchester.

Lichfield Cathedral.—For more than twelve months past, the large window at the west entrance has been entirely blocked up by a screen of boarding, which has been fixed there during the time the alterations to the window have been in progress. The old window has been removed, the architectural design entirely altered by Mr. G. G. Scott, and a new one of stained glass, manufactured by Messrs. Clayton & Bell, of London, has been fixed. The chief features are six large figures in the six divisions of the window, representing St. Michael, St. Joseph, the Virgin and Child, and, in the three others, the Magi. At the extreme top of the window is the representation of the Holy Trinity, and underneath the Virgin Mary and St. Simeon and Child. Beneath the six large figures above referred to are six separate Scriptural subjects, the other portions of the window being filled with designs of a floral and architectural character. The window is erected as a memorial of the late Rev. Canon Hutchinson.

COMPETITIONS.

Alexandra Park, Manchester.—Thirty-seven designs were sent in for the new public park for the Hulme district, at Moss-side, to be named after the Princess of Wales. The two premiums offered by the City Corporation for the best designs have both been gained by London artists; the former by Mr. A. G. Hennell, Southampton-buildings, Chancery-lane, and the latter by Mr. Fred. A. Klein, Cannon-street. Openness and breadth are the main features of the chosen design. There are no mazes, and only few retreats; the centre of the park is an open lawn, broken by no protuberance, shadowed by no tree or shrub, but a wide, free expanse of green grass, inclosed by wooded banks, and thereby also sheltered from the outside world, but on which the sun may shine and the winds blow freely. The second prize design very closely resembles the first, the chief exception to this statement being that the lawn and cricket-ground in Mr. Klein's design are made perfect circles, while in Mr. Hennell's the spaces are oval.

FROM IRELAND.

Portadown.—The newly-erected Presbyterian church—the second in Portadown—has been formally opened for public worship. The site chosen for the new building is but a short distance from the town, on the Armagh road, in the centre of a largely extended building district, the property of the Duke of Manchester, which will ere long be principally devoted to private dwelling-houses, a large number having already been erected and occupied. The building is Gothic in style, from the designs of Messrs. Body & Batt, of Belfast; and the contractor was Mr. John Collen. The frontage is of limestone, with freestone dressings, and ornamented by a large central window, filled in with cathedral glass and stained-glass margins, having moulded jambs, arch, and bosses, carved, likewise in freestone, from the Dungannon quarries of Mr. Kennedy, the pointed gable being surmounted by a pinnacle with carved finial. Accommodation has been provided for 350 of a congregation, and the pews are of pine, varnished, this portion of the work having been performed by Mr. Joseph Wright, jun.

BROKEN GLASS IN BLANK WINDOWS.

SIR,—Your correspondent "H. H. S.," in his humorous letter of last week, has not introduced a single ray of light to my "blank" windows. If broken by a stone or other missile, such fracture could readily be distinguished from those already broken; in which case the glass is not "starred," as it would be if caused by a blow, but exhibits a sort of network of fractures.

The same day on which I wrote my former letter, a member of the establishment was on the scaffold with the workmen, and hearing a slight cracking noise, turned, and saw one of the black squares break. He describes it as occupying several seconds from the time he heard the noise to the completion of the fracture. This is nothing supernatural, but what is it? Scientific men, including the manufacturers of the glass, have been consulted without at present ascertaining the true cause.

I heartily agree with "H. H. S." in condemning the use of "blanks." I would under no circumstances insert them in new buildings, and, where practicable, would abolish them in old buildings; but in the present instance it would require the skill of something more than a jerry-architect to dispense with them where they number about 100, the house being 300 years old. W. B.

Longleat.

Books Received.

The Handbook of the Year 1868: a Register of Facts, Dates, and Events, at Home and Abroad. With Appendices. By G. H. TOWNSEND. London: Wyman & Sons, Great Queen-street. 1869.

THIS volume is a well-compiled repertory of interesting and important facts bearing upon religion, commerce, legislation, politics, literature, science, and art, forming an encyclopædia of facts, dates, and events. The chronological

division does not profess to record everything of any public importance that may have occurred in course of the year, or to be an exhaustive summary of facts and occurrences, but is intended as an occasional aid to those who consult the alphabetically-arranged "register," which is the main portion of the work. As the original editor, Mr. Townsend, remarks in the preface, it is

"Designed to supply a trustworthy record, within reasonable limits and upon a well-defined plan, of the principal changes, transactions, and events that have occurred in all parts of the globe during the past twelve months. It contains an epitome of the results of human action and endeavour in numerous directions, recording failure as well as success, disaster as well as triumph, and is in every respect 'an abstract and brief chronicle of the time.' In its pages will be found records of both persons and things; and though specially devoted to the illustration of 1868, it supplies the necessary links to connect the Past with the Present, and to bring clearly before the reader the events and the characters that have appeared upon the scene."

There is a large and well-selected and condensed mass of useful matter for reference throughout its seven to eight hundred pages; and the appendices contain copies of diplomatic and state papers, Acts of Parliament, official documents, &c., and statistical and other tables. Amongst them are lists of the Houses of Lords and Commons. It would be an improvement in next year's issue were an alphabetical list of *members'* names appended to the Commons list of *borough* names. The editor of this work, Mr. Townsend, the author of "The Manual of Dates," had nearly completed it, we learn, when his brain gave way, and he has since died.

British Rainfall, 1868. *On the Distribution of Rain over the British Isles, during the year 1868; with Remarks and Illustrations.* Compiled by G. J. SYMONS, F.M.S. London: Stanford. 1869.

THE results of observations at about 1,500 stations in Great Britain and Ireland are here given; and that result is that in England the rainfall of 1868 was 2 per cent. in excess, and in Ireland 6 per cent.; but that in Scotland the excess was really bewildering, being no less than 10 per cent.! No doubt, the mountainous nature of much of the surface of Scotland has had something to do with this excess.

The volume is illustrated, for frontispiece, with an engraving, showing the arrangement of rain gauges, &c., on the grounds of Strathfield Turgiss rectory, Reading, the management of the records of rainfall there, and of the various experimental and other apparatus by which it is indicated, being under the care of the rector, the Rev. C. H. Griffith, who has written an elaborate and able paper on the subject, included in the volume under notice; which may be regarded as the authorized record of rainfall; Mr. Symons being the Rainfall Secretary to the British Association. The experimental committee of the Royal Society, however, pay the expenses of the thermometrical work undertaken by the Rev. Mr. Griffith, which has met with their approbation.

Vere Foster's Drawing Copy-Books. London: Simpkin, Marshall, & Co.; Marcus Ward & Co.

THESE very cheap books are intended mainly for self-instruction in schools which have not the advantage of a drawing-master. Each number contains both examples and paper for the pupil's copy. They have been adopted by the Commissioners of National Education in Ireland, and are well suited for the purpose for which they are required. Each book contains a distinct series of subjects, such as flowers, trees, boats, and ships, the human figure, animals, &c.

The following list of artists who are occupied on this series shows how earnest the projector is in his endeavours to provide the best copies obtainable. Each part costs 1d., or, on better paper, 3d. The Human Figure—Thomas D. Scott. Animals—Harrison Weir. Landscapes—R. P. Leitch, E. M. Wimperis, &c. Marine Subjects—E. Weedon, J. Callow, G. Whitaker. Flowers—W. H. Fitch, W. French, F. E. Hulme, W. G. Smith, W. S. Coleman, &c. Architecture, Ornament, and Perspective—W. G. Smith. Geometry and Mechanics—J. Mangnall.

A Practical Course of Military Surveying; including the Principles of Topographical Drawing. By Captain LENDY, F.G.S., &c. With an Atlas, mostly by Major PETLEY. New Edition. London: Atchley & Co. 1869.

THAT this able work has reached a second edition is a practical and well-merited testimony in its favour. We reviewed the work at considerable length some years ago. The author, it may be recollected, is director of the Practical Military College at Sunbury; and Major Petley is Professor of Military Surveying at the Royal Military College, Sandhurst. This edition contains many additional plates, &c. The practical part of the work has not been altered, and remains quite elementary, though deemed sufficient for all field purposes. A brief sketch of the operations necessary for a trigonometrical survey has been added.

Street's Indian and Colonial Mercantile Directory for 1869. London: Street, Cornhill.

IN this edition of the work under notice various additions and other improvements have been effected. It is not intended to supersede local directories, but to give a concise book of reference to every English, foreign, and colonial merchant. If reliable, and so far as we can we have tested it and found it so, this must be a very useful book to mercantile men, and indeed, to many others interested in India and the colonies. It is not only a directory, or series of directories, but gives much other valuable information as to trade returns and lists of trades, tariffs, populations, rates and times of steam and other transit, London agents of banks, principal products and articles of trade, tables of local weights and measures, &c. There is also a series of directories of shipping-agents, manufacturers, &c., more or less connected with India and the Colonies, in London and the principal towns throughout England, and at Glasgow.

Appleby's Illustrated Hand-book of Machinery and Ironwork. By APPLEBY BROTHERS, Engineers. London: Spon.

ALTHOUGH this is in truth a trade book of articles manufactured or sold by Messrs. Appleby, of Southwark, relating as it does to cranes, engines, pumps, contractors' machinery and tools, colonial and agricultural and other machinery and plant, &c., it contains a large mass of useful matter, and is profusely illustrated. It gives the cost, working expenses, and results obtained in the use of the various machines, with weights, measurements, &c.; and prices of tools, stores, &c., required by civil and mechanical engineers, merchants, and others, with numerous tables and memoranda.

VARIORUM.

"Power without Fuel: an Investigation of the Means by which it may be obtained from the Heat of Natural Sources." By James S. Baldwin. New York: Winans & Co., Gold-street. 1869. This pamphlet contains an account of certain improvements on the carbonic acid engine to fit it for work by means of waste heat, as of blast furnaces, kilns, and ironworks, as well as the heat of the sun, of artesian wells, &c.——Voltaire's "Histoire de Charles XII." has been long recognized as one of the best French reading-books for students of the language, and Mr. Tegg has done wisely in issuing a new edition. It is edited by the Chevalier de Chatelain, and is very neatly got up.——An elaborate paper "On the Relative Demand for Labour in the Agricultural and Manufacturing Districts, its Causes and Effects," in *Frazer's Magazine* of this month, with maps and diagrams, merits careful consideration. The same number contains a good account of Mr. Fergusson's book, "Tree and Serpent Worship."——"Debrett's House of Commons and the Judicial Bench" (edited by R. H. Mair, and published by Dean & Son) is uniform with the "Peerage" and "Baronetage," already mentioned, and gives a brief biographical sketch of each member and his "arms." A list of "Parliamentary Expressions and Practices" supplies particulars that may be useful to general readers. It is altogether the best book of its class.

Miscellanea.

The Royal Birmingham Society of Artists.—The Spring Exhibition of this Society has been opened, with a collection of water-colour drawings and oil sketches (the latter not very numerous). This year's collection is considered to be very nearly, if not quite, equal to that which opened the series.

Honour to English Architects.—We have great pleasure in mentioning that Professor G. G. Scott, R.A., and Mr. G. E. Street, A.R.A., have been elected honorary members of the Imperial Academy of the Fine Arts at Vienna.

Worcester Diocesan Architectural Society.—The fifteenth annual meeting of this society has been held at the Natural History Society's council-room, Worcester; Mr. G. J. A. Walker presiding. The report referred chiefly to the restoration of old and building of new churches in the diocese, and to the Cathedral restoration. Referring to the Grammar School in the Tything, the report says:—

"A handsome new building was opened in the Tything last summer, for the Grammar School founded at Worcester by Queen Elizabeth. It was designed by Mr. Perkins, in the picturesque but debased style of architecture which prevailed in England during that monarch's reign; having large mullioned windows, carved gables, and other characteristics of the Elizabethan period. The large schoolroom has a fine open-timbered roof, but is somewhat disproportionately lofty for its length. Indeed, the whole design would have been much more effective had the same amount of detail been distributed over a building half as long again; the principal façade, with its three large windows, each surmounted by an ornamental gable (the middle one containing a statue of Queen Elizabeth), and the tall louvre rising from the centre of the high roof, having rather a crowded and overdone appearance. There is a class-room at the north end, also a porch and commonplace iron railings in front; but the structure altogether forms by far the most important and satisfactory architectural feature in this part of the city."

The Orphan Asylum at Henwick is thus noticed:—

"The Orphan Asylum at Henwick is approaching towards completion, and promises to form another example of the failure of public competition to secure the erection of buildings of even tolerably good architectural design. In this instance a most eccentric version of Gothic has been adopted. The front is cut up by all kinds of projections and irregularities, such as queer-shaped bay windows, stepped gables, overhanging dormer windows, spiky pinnacles, &c.; there being an entire absence of that simplicity and repose which should especially characterize structures of this description. The internal arrangements may be good, but if so, there could be no reason why they might not have been combined with a well-proportioned and consistent façade."

A Copying Ink that Needs no Press.—Dr. Rud. Boettyer, of Frankfort, according to the *Scientific Review*, prepares thus a black copying ink, which flows easily from the pen, and will enable any one to obtain very sharp copies without the aid of a press:—One ounce of coarsely broken extract of logwood and two drachms of crystallized carbonate of soda are placed in a porcelain capsule with eight ounces of distilled water, and heated until the solution is of a deep red colour, and all the extract is dissolved. I then take the capsule from the fire, and stir well into the mixture one ounce of glycerine of a specific gravity of 1·25, fifteen grains of neutral chromate of potash dissolved in a little water, and two drachms of finely pulverised gum arabic, which may be previously dissolved in a little hot water so as to produce a mucilaginous solution. The ink is now complete and ready for use. In well-closed bottles it may be kept for a long time without getting mouldy, and, however old it may be, will allow copies of writing to be taken without aid of a press. It does not attack steel pens. This ink cannot be used with a copying press. Its impression is taken on thin moistened copying paper, at the back of which is placed a sheet of writing-paper.

Earthquake-proof Architecture.—The *New York Times*, following in the *Builder's* wake, says:—"The recent earthquakes on the Pacific coast have necessitated the adoption of some new style of building in that section of the country. Mere brick shells will not stand many heavy land shocks, and the architects of San Francisco are now busy over earthquake-proof plans of architecture. One of the new plans proposed is to build a compact wooden frame structure, and surround it with brick walls. The frame would secure it against falling, and the wall would render it fire-proof. A large publishing-house in San Francisco is soon to erect a store upon this plan. Another method proposed is to build thick walls with iron girders inserted in them, and riveted at the angles. There has been considerable discussion among builders on this subject, and a new field is open for the ingenuity of architects. Anybody who will guarantee to put up a house that will stand an ordinary earthquake without damage, whether it be built of wood, stone, iron, paper, or rubber, can make his fortune on the Pacific coast."

Increase of Mortality in Whitehaven.—According to Dr. Robert Lumb's return, the mortality in Whitehaven for the month ending February 23 was at the rate of 33 per 1,000 per annum. This is a rate of mortality higher than the average of thirteen large towns. In the week ending March 6 the mortality in London was 24 per thousand, and in thirteen other large towns it was 26.

The Model Dwellings, Worcester.—An addition has just been made to the pile of buildings known as the Model Dwellings, Copenhagen-street, by the completion of the quadrangle on the west side. The experiment made by the company formed to promote the erection of these buildings has so far been successful. The new portion consists of eight dwellings arranged in two flats one above the other. Each habitation comprises a living-room with fire-grate and oven, cupboards, and other necessary conveniences, two bed-rooms, water-closet, sink-stone, meat-safe, plate-rack, and table. The rooms are lofty and ventilated, colour-washed, and woodwork painted. The average rental of these dwellings is 3s. 6d. per week, including all payments.

Fall of a Grand-Stand.—An accident has happened at the Rotherham steeplechases. Whilst one of these steeplechases was being run, several hundred persons viewed the race from the grand-stand, when suddenly the structure collapsed. Those on the lower tiers saved themselves by jumping to the earth as soon as they felt the vibration, but those above them on the fourth and fifth tiers fell from a height of about 6 ft., tumbling upon the heads of their neighbours. As soon as they gained their feet, it was found that two women were covered with part of the woodwork, and had each a broken leg. Others were rather seriously injured. Many persons had narrow escapes, and it is surprising that—looking at the extent, 176 ft. in length—no loss of life took place. It appears that the erection had been considered capable of bearing more weight than was upon it, but the earth being soft on account of recent rain, the supports were gradually buried in the ground. Mr. Joseph Blackmoor, of Rotherham, erected the stand.

Opening of a Sailors' Home at Rotherhithe.—For some time past an effort has been made to establish a sailors' home on the south bank of the Thames by the Society for the Promotion of Sailors' Homes. That effort has at length been successful, and a home at Rotherhithe has just been formally opened by Admiral Sir W. Hall, K.C.B., chairman and honorary managing director of the society. The new home is fitted up in a simple, unpretending style. It contains sleeping accommodation for about thirty men, each man having a little cot to himself; a convalescent room in which sick and destitute seamen will be taken care of gratis; dining, refreshment, and reading rooms; and there are also a lavatory, skittle-alley, quoit-ground, &c. It is hoped that when the institution is fairly started it will be self-supporting.

Masonic Literature.—An American gentleman, Mr. Morris, of Kentucky, who has recently been travelling in Syria and Palestine, is now preparing for publication in the United States his observations on the Holy Land from a Masonic point of view. The book will be called "Handmarks of Solomon's Builders." Mr. Morris wishes to dedicate it to Râschid Pasha, the present Governor of Syria, who is a Turk and a Moslem, but, nevertheless,—like the chivalrous Abd-el-Kader, too, the ex-Emir of Algeria,—a Freemason and an enlightened man. The book will be illustrated with portraits of these and other Oriental Freemasons. It is to be hoped that Mr. Morris, during his travels, had his eyes open for Masons' Marks.

Nottingham School of Art.—In the Government examinations held last month as many as 178 candidates presented themselves for examination, and 314 papers were worked and forwarded to the Department of Science and Art, London, for the prizes, &c., to be adjudged. In freehand drawing 100 papers were worked, in practical geometry 66 papers, in perspective 55 papers, in model drawing 83 papers, and in mechanical drawing 10 papers—total, 314 papers.

Ulverstone (Lancashire).—A system of new sewers, embracing upwards of six miles in length, is being laid down at this place by the sewer authority. Mr. James Young, of Sunderland, is the contractor; Mr. Brierley, of Blackburn, the engineer. The works are to be completed in seven months.

St. George's Church, Queen's-square, Bloomsbury.—The restoration (?) of St. George the Martyr Church, Queen's-square, is now complete, and it was to be opened on Tuesday by the Bishop of London. Mr. S. S. Teulon is architect. Mr. Bromfield, sculptor, executed the figures and wood and stone carving.

Royal Institute of the Architects of Ireland.—At the last ordinary general meeting, Mr. Charles Geoghegan, Fellow, in the chair, Mr. Thomas Early, Associate, read a paper on "Stained Glass," in which he traced the history of the art, from the examples of the twelfth century, as at York, until recent times, dealing with the revival of some thirty years past, and his own experience in connexion with the Royal Commission for the decoration of the Houses of Parliament, and calling special attention to the effects of colour, the result of unequal thickness, and irregularity of surface in the old glass, which is lost by the smoothness of surface and equal density of most modern work. His paper was referred to the council for publication. Mr. Geoghegan's patent regulator for water under high pressure was exhibited at work in the rooms, and explained by the patentee. Dr. Kidd also explained, by diagrams, his invention having similar objects.

Institution of Civil Engineers.—At a recent meeting of this institution, an elaborate paper "On American Locomotives and Rolling Stock," by Mr. Zerah Colburn, was read. It was remarked that, in construction and working, the American railways represented little more than a modified application of English practice. When the systems of the railway machinery of the two countries were compared, many of the differences which first struck the eye were found to be external rather than fundamental; and so, too, many of the peculiarities of construction now retained in America were due to the initiative of English engineers. A discussion of Mr. Colburn's paper took place on the 18th ult.

Rating of the New Meat Market, Smithfield.—The report of the Finance and Improvement Committee recommends that the several premises situate within the New Metropolitan Meat and Poultry Market be respectively assessed to the rates made by authority of the commissioners, on rentals recommended by Mr. Hudson, in his valuation submitted to the last court, amounting to between 17,000*l.* and 18,000*l.* The City Commissioners of Sewers have adopted the report.

Valuation of Property.—There has just been published the text of a Bill which provides for a common basis of value for the purposes of Government and local taxation, and for uniformity in the assessment of rateable property in England. It is the measure prepared and brought in by Mr. Goschen, Mr. Arthur Peel, and Mr. Ayrton. It is proposed by this Bill to apply the principle of the measure framed by the Government for the assessment of property in the metropolis to the provinces, and the end is to be obtained by the creation of a similar kind of machinery. In the provinces a valuation board is to be elected in every county for the purpose of determining the percentage or rate of deductions to be made from the gross value in calculating the rateable value of hereditaments: the board to consist of representatives of the various assessment committees in the county, two from each. The bill contains 77 clauses, and there are various schedules attached.

Working Men's College Building Fund. From a statement by the Council it appears that the ground in the rear of the house in Great Ormond-street (12,000 square feet in area) being the freehold property of the College, they are advised that such a building as is wanted can be well and substantially built, in a plain but good style, for about 2,000*l.* or 2,500*l.* Of this amount they have 1,000*l.* in hand and 200*l.* promised. Plans prepared by Mr. W. Webbe have been accepted, and the building will be commenced immediately. Financially the college is self-supporting. They have never yet asked money of the general public, and think they are justified in doing so now. Professor Maurice, the principal, signs the statement. Contributions may be sent (amongst others) to the London and County Bank, Oxford-street branch ("Working Men's College Account").

Fire at South London Music-hall.—The Music-hall in London-road, Blackfriars-road, has been gutted by fire. The walls, it appears, remain uninjured, and part of the premises are only damaged a little by water. The cause of the fire is believed to have been the dropping of a lighted fusee or some lighted tobacco through chinks in the flooring into a cellar beneath. Plans are being prepared for restoring the hall on an enlarged scale.

Royal Microscopical Society.—The annual *soirée* of this Society was held at King's College, on Wednesday evening last; none of the objects exhibited surpassed in interest the produce of Dr. Carpenter's deep-sea dredgings: some of these objects were recently fished up by him from a depth of two thousand fathoms in the North seas.

The Public Health.—In the week ending Saturday, the 20th, the annual rate of mortality was very high. It was 25 per 1,000 in London, 34 in Edinburgh, and 27 in Dublin; 24 in Bristol, 22 in Birmingham, 32 in Liverpool, 34 in Manchester, 28 in Salford, 36 in Sheffield, 28 in Bradford, 33 in Leeds, 26 in Hull, 22 in Newcastle-upon-Tyne, and 47 in Glasgow.

Building in Brighton.—The Brighton papers speak well of a new building erected by Mr. Hudson, in Station-street, for storing valuable furniture. With a view to the easy removal of heavy packages, as also to the preservation of them from damp, dust, and vermin, the entire area of the stores has been floored with Pyrimont asphalte.

TENDERS.

For the erection of new shop and dwelling-house and other premises in the Irongate, Derby (exclusive of basement), for Mr. S. Evans. Messrs. Thompson & Young, architects.

E. Thompson	1,999 0 0
Gadsby	1,975 0 0
J. W. Thompson	1,950 0 0
Fryer (accepted)	1,749 0 0

For the erection of a new Congregational Chapel, Dunmow, Essex. Mr. Charles Pertwee, architect, Chelmsford.

	Gross Tender.	Deduction for old materials.
Thorn	£2,497 0 0	£100 0 0
Glasscock	2,182 0 0	195 0 0
Gozzett	2,159 0 0	165 0 0
Brown	2,055 0 0	180 0 0
Johnson	2,050 0 0	203 0 0
Crabb & Letch	2,050 0 0	200 0 0
Cole, Bros. (accepted)	1,844 14 0	210 0 0

For rebuilding the Huntingdon Grammar School-house. Mr. R. Hutchinson, Huntingdon, architect:—

T. C. Smith	£1,456 17 0
W. Balmer	1,456 0 0
Cennell & Balmer	1,392 16 0
G. Thackray (accepted)	1,337 0 0

For the erection of a farm residence at Sawtry, Hunts, on the estate of the Right Hon. the Baron Chesham. Mr. Robert Hutchinson, architect, Huntingdon:—

Andrews, Brothers	£2,587 0 0
Cade & Son	1,691 0 0
Coates	1,623 18 0
Richardson & Spriggs	1,583 0 0
Richardson & Maile	1,506 0 0
Machin	1,491 3 2
Thackray	1,485 0 0
Richardson & Tyers	1,459 0 0
Hobson & Taylor	1,439 0 0
Heythorpe	1,398 0 0
Bridge & Whiteman	1,395 0 0

For repairs and alterations at 31, Cheapside, E.C., for Messrs. Rowsell & Son. Messrs. Haywood & Blashill, architects:—

Mansfield & Price	£486 0 0
Ramsey	476 0 0
Nind	450 0 0
Colls & Sons	441 0 0

For the erection of a private residence at Brampton, Hunts. Mr. Robert Hutchinson, Huntingdon, architect:—

Allen	£438 0 0
Maile & Richardson	435 0 0
T. C. Smith	429 0 0
Cennell & Balmer	404 0 0
Francis	400 0 0
Thackray	399 0 0

For the erection of villa residence, with stable, coach-house, &c., for Mr. Charles Cannon. Mr. William Smith, architect:—

Deacon	£3,540 0 0
Killby	2,827 0 0
Henshaw	2,778 0 0
Browne & Robinson	2,769 0 0
Webb & Son	2,650 0 0
Dove, Brothers	2,645 0 0
Crabb & Vaughan	2,594 0 0
Eaton & Chapman	2,590 0 0
Wicks, Bangs, & Co.	2,480 0 0
Hill & Son	2,430 0 0
Carter & Son	2,430 0 0
Hughesden	2,400 0 0

For addition to Messrs. Johnson & Son's warehouse, in Hatton-garden. Mr. Lewis H. Isaacs, architect. Quantities supplied by Mr. Riddett:—

Smith & Son	£894 0 0
Sewell & Son	596 0 0
Walker	560 0 0
Bamford	545 0 0
Foxley (accepted)	519 5 0

New wing to almshouses, at Seaford, Sussex. Messrs. Wm. G. Habershon & Pite, architects:—

Kempsell	£1,361 0 0
Davey	1,300 0 0
Burgess	1,266 0 0
Kirk	1,240 0 0
Morling	1,233 0 0
Fuller & Longley	1,111 0 0
Nash	1,069 0 0

For various works to premises, 107, Leadenhall-street. Mr. W. Eve, architect:—

Lowe	£928	0	0
Izor	881	0	0
Browne & Robinson	847	0	0
Brass	846	0	0
Newman & Mann	816	0	0
King & Sons	694	0	0
W. Turner	659	0	0
W. T. Turner (accepted)	639	0	0

For deepening and covering the Putney Boundary sewer, for Metropolitan Board of Works, Spring-gardens. Mr. Bazalgette, engineer:—

Dickenson & Oliver	£3,200	0	0
Robinson	2,914	0	0
Nicholson	2,850	0	0
Hiscocks & Williams	2,450	0	0
Pearson	2,399	0	0
Blackmore	2,350	0	0
Aviss	2,149	0	0
Crocket	1,950	0	0

For building St. Silas Church, Hull. Quantities supplied for both designs by Messrs. Rake & Rauwell:—

Mr. Smith's design.

Simpson & Malone	£3,993	0	0

Mr. Musgrave's design.

Hubbershaw	£3,942	0	0
Sergeant	3,780	0	0
Shaftoe & Barry	3,744	0	0
Skinner	3,715	0	0
Dove, Brothers	3,575	0	0
Hutchinson	3,510	0	0
Foster	3,499	0	0
Sissons	3,492	0	0
Barrett	3,478	0	0
Musgrave	3,419	0	0
*Evington & Wharram	3,204	0	0
Robinson & Hall	3,192	0	0

* Accepted, subject to approved sureties being found.

For the erection of fever and small-pox wards, Stockport. Mr. John Whitaker, architect, who also supplied the quantities:—

Swindells	£2,788	0	0
J. Barlow	2,685	0	0
Bullock	2,680	0	0
Bann	2,565	0	0
T. & W. Meadows	2,548	0	0
Gothard	2,475	0	0
J. & J. Longson	2,444	0	0
Brown	2,420	0	0
Hollis	2,420	0	0
Bassett	2,390	0	0
Crosby	2,380	0	0
Walford	2,380	0	0
Robinson	2,340	0	0
Austin	2,339	0	0
Woolsacott	2,335	0	0
R. J. & W. E. Kaye	2,300	0	0
H. Barlow (accepted)	2,274	0	0

For alterations, new shop front, &c., 124, Edgware-road. Mr. W. S. Witherington, architect:—

Hawk	£426	0	0
Mark	417	0	0
Staines & Sons	278	0	0
Melville	239	0	0

For the erection of a ninety-quarter malthouse at Farndon Field, near Newark, Notts, for Mr. Joseph Richardson. Mr. Charles Baily, architect:—

Mackenzie	£3,040	0	0
Henderson	3, 00	0	0
Fretwell (accepted)	2,986	0	0

For the erection of wool stores in Mill-gate, Newark, Notts, for Mr. Thomas Bayley. Mr. Charles Baily, architect:—

Ward	£525	0	0
Fretwell	493	10	0
Duke	492	0	0
Mackenzie	485	0	0
Lane (accepted)	480	0	0

For Roman Catholic Church and Presbytery, Tudhoe for Rev. J. Watson. Messrs. J. A. Hansom & Son, architects:—

Masonry.

Ogleby	£1,687	0	0
Lowes	1,500	0	0

Excavation, Masonry, and Plastering.

Walker & Joplin (accepted)	1,390	0	0

Plastering.

Pearson	135	12	0

Carpenter and Joiner.

Saunderson	747	0	0
Graham & Fairless	667	0	0
Alderson	595	10	0
Nicholson (accepted)	545	0	0

Slating, &c..

Dawber	180	0	0
Mascall (accepted)	138	10	0

Plumbing, Painting, Glazing, and Metal.

Smaith	253	0	0
Heron	208	0	0
Almond (accepted)	203	7	0
Simpson	197	3	0
*Hodgson	104	19	7

* Not including Metal.

Accepted Tenders for St. Paul's Church, Ryhope, county Durham. Sittings for 538 adults. Mr. Ebdy, architect.

No. 1. For nave, chancel, south transept and aisle, vestry, organ chamber, first stage of peal tower, aisle arches, columns, and temporary wall for north aisle.

No. 2. North aisle and transept.

Masonry, Carpenter, Joiner, and Plasterer's Work.

	No. 1.	No. 2.
Moir	£1,684 10 0	£300 0 0

Slating.

Preston	134 0 0	included.

Plumber and Smith's Work.

J. & W. Glaholm	71 0 0	included.

Stainer and Glazier's Work.

Almond	75 0 0	4 0 0

For the reseating of the chancel of Eye Church, Suffolk. Mr. James K. Colling, architect:—

Wilson	£430	0	0
Young	340	0	0
Vine & Day	245	0	0
Tooley	240	0	0
Cornish (accepted)	230	0	0
Ludkin	210	0	0
J. & A. Wright	205	10	0

For a chapel, school, and residence, East-road, Hoxton. Mr. Horace Field, architect. Quantities by Mr. George Lansdown:—

Holland & Hannen	£5,198	0	0
Dove, Brothers	5,175	0	0
Coleman	4,940	0	0
Patman & Fotheringham	4,895	0	0
Scrivener & White	4,791	0	0
Bishop	4,734	0	0

For residence at Southgate. Messrs. Wm. G. Habershon & Pite, architects:—

Newby	£755	0	0
Thurmott	737	0	0
Carter & Son	720	0	0
Kelly	697	0	0
Cowland	686	0	0
Field	650	0	0
Baker & Constable	591	0	0
J. R. & T. Davis	555	0	0

For rectory-house, Saxmundham, Suffolk. Messrs. Wm. G. Habershon & Pite, architects:—

Carter & Son	£1,890	0	0
Beedon	1,745	0	0
Chapman	1,732	0	0
Culling	1,725	0	0
Smith	1,719	0	0
Gibbins	1,496	0	0
Cunnolds	1,483	0	0
Smith, of Aldeburgh	1,477	0	0
Dove	1,400	0	0
Carter, of Saxmundham	1,360	0	0

For Mr. Fothergill's shops and factory, Newport, Monmouth. Messrs. Wm. G. Habershon & Pite, architects:—

John Williams	£4,125	0	0
Jones	3,775	0	0
William Williams	3,729	0	0
Richards	3,673	0	0

TO CORRESPONDENTS.

"*Main Drainage and Diarrhœa.*"—Several letters as to Leicester shall have consideration next week.

A. E. B.—J. B.—Messrs. P.—C. P.—M. P.—H. R.—J. J. R.—G. A.—G. E. S.—S. B.—Mr. P.—Mrs. B.—J. P.—M. E. R.—W. T.—S. & Son.—C. K.—A. G. H.—T. N. D.—E. R.—C. G.—W.—R. C.—A. S.—C. B.—T. G. J.—Messrs. H.—T. B.—H. K. & W.—H. R.—T. C. E.—P. L.—W. T. T.—E. & R.—R. A.—A. R. T.—J. F. B.—H. & P.—J. T. M.—W. L. H. I.—A. G. H.—J. R.—G. L.—W. K. (the subject has been often treated of in the *Builder*, but remedy is not easily found. A coating of good Portland cement would probably be the cheapest in the end).—E. M. P. (it was not so stated).—W. L. (who was the architect?)—E. L. S. (next week).—A Palace (next week).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

IMPROVED MACHINERY, combined with STEAM POWER, is employed by J. W. BENSON in the Manufacture of Church, Turret, Stable, and Tell-tale Clocks, Sun and Wind Dials, Perpetual Calendars, and every description of Clock and Watch Work. Architects, Builders, Committees, &c. can be promptly supplied with estimates. A descriptive Pamphlet on Church and other Clocks, post-free, 2d. J. W. BENSON, by special appointment, Watch and Clock Maker to His Royal Highness the Prince of Wales. Steam Factory for Clocks and Watches, 58 and 60, Ludgate-hill; Showrooms, 25, Old Bond-street, London.

Important Sale of Timber and Deals at Hull, by

MESSRS. HEAVEN, FORD, & CO.—TO BE SOLD by PUBLIC AUCTION, on WEDNESDAY, 7th APRIL, 1869, commencing at ELEVEN o'clock a.m precisely, in B Yard, Drypool-basin, Victoria Dock (opposite Drypool Church), Hull,

46,100 Pieces Baltic REDWOOD DEALS, BATTENS, and BOARDS.
32,700 Pieces Baltic WHITEWOOD DEALS, BATTENS, and BOARDS.
7,500 Pieces Gothenburg REDWOOD FLOORING BOARDS, planed, tongued, and grooved.
1,000 Pieces Quebec BRIGHT PINE DEALS.
12,000 Pieces W.I.W.O. PUNCHEON STAVES.
461 Pieces Savannah Hewn PITCH PINE TIMBER, now landing ex Paunee, from Savannah. This cargo is quite fresh and of very prime quality.
291 Pieces Stettin Hewn OAK TIMBER, now landing ex William, from Stettin, being the first arrival this season, quite fresh, of superior quality, and larger in length and square than the usual average.

At same time and place,

7,212 Pieces Baltic REDWOOD DEALS and BATTENS, stored at West Hartlepool.
1,070 Pieces Baltic REDWOOD DEALS, stored at Grimsby.

Samples of the above will be shown in B Yard, in Hull. Also, sundry parcels daily expected to arrive.—Catalogues may be had on application to HEAVEN, FORD, & CO. Queen's Dock, Hull.

COURTS of JUSTICE CONCENTRATION (SITE) ACT.—Western Section.—Fourteenth sale of Building Materials.

MESSRS. GLASIER & SONS are favoured with instructions from the Commissioners of Her Majesty's Works and Public Buildings, to SELL by AUCTION, on the PREMISES, on TUESDAY next, APRIL 6, at TWELVE for ONE o'clock, in Lots, the BUILDING MATERIALS of thirteen Houses, Nos. 4, 5, and 6, Horseshoe-court, and Nos. 54 to 63, Clement's-lane, and range of nearly new Workshops in the rear: comprising about 800,000 capital stock bricks, tiles, slates, timbers in roofs and floors, doors, sashes and frames, register and other stoves, iron crane and gear, iron columns, hot-water apparatus and boiler, rough plate-glass, granite and York paving, fittings, &c.—May be viewed the day prior and morning of sale, and catalogues had at the Office of Her Majesty's Works, &c. 12, Whitehall-place; on the Premises; and of the Auctioneers, 41, Charing Cross.

Freehold. — Hampstead-heath. — Public Institution. — Home for Convalescents, Infirmary, Hospital, Asylum, large Private School, Sanatorium, or a Public Industrial or Training Establishment, and Freehold Ground-rent of 100*l.* per annum.

MESSRS. DOWSETT & CHATTELL are instructed to SELL by AUCTION, in two lots, at the MART, Tokenhouse-yard, on TUESDAY, APRIL 13th, at ONE o'clock precisely, unless an acceptable offer be previously made, that important CASTELLATED MANSION, known as Hampstead-heath House, delightfully positioned in the Vale of Health, 400 feet above the Thames level. It contains five commodious lofty reception-rooms, a public room 80 feet long, and another room of similar size, 28 bedrooms, some of which are fitted with baths, &c.; lavatories and water-closets; hot and cold water and gas are laid on all over the house; the domestic apartments are very extensive, and are connected with each floor by a lift. The brickwork is of a most substantial character, being in some parts 2 feet thick, and in others 18 inches. The grounds are not large, but the heath, extending over several hundred acres, is available for the recreation of the occupiers. A lease for 99 years will be granted at a ground-rent of 100*l.* per annum. Lot 1 will comprise the lease, and Lot 2 the ground-rent.—Plans, particulars, and views may be obtained at the Mart, and of Messrs. DOWSETT & CHATTELL, 29A, Lincoln's-inn-fields.

The BRIDGEN HALL ESTATE, Enfield.

MR. JOHN M. DEAN will SELL by AUCTION, at the GOAT INN, Forty Hill, Enfield (near the property) on THURSDAY, APRIL 15th, at FOUR o'clock, the remaining portion of a FREEHOLD ESTATE, comprising 48 plots of most eligible Building Land, including a commanding tavern plot, pleasantly situate at Forty Hill, on the high road from Enfield to Cheshunt, having frontages on the high road and other roads lately made. The land is high and dry, with a gravelly subsoil, and is situated about a mile from the Enfield Railway Station, and near the intended station on the Great Northern and Metropolitan line, is surrounded by houses of first-class character, and other houses are much wanted in the neighbourhood. Note.—Four-fifths of the purchase money may remain on mortgage contract, at 5 per cent. interest, payable by instalments within 5 years, if required.—May be viewed, and particulars and conditions of sale, with plans, had of Messrs. RUSSELL, SON, & SCOTT, Solicitors, 14, Old Jewry Chambers, E.C. and Dartford, Kent; at the Place of Sale; and of Mr. JOHN M. DEAN, Auctioneer and Surveyor, The Grove, Stratford, E.

Near to Bow Bridge, Stratford, and Leytonstone-road, Essex.—To Timber Merchants, Builders, Contractors, Wheelwrights, and Others.

MESSRS. PEAKE & EDEN are instructed by the trustees of Mr. Deason, to SELL by AUCTION, upon the PREMISES and YARDS, situate High-street, Stratford; Bridge Yard, Stratford; wharf at back of Bridge Yard, Stratford; and Maryland-road, Leytonstone-road; all in the county of Essex, on TUESDAY, APRIL 6th, 1869, and following day, at TWELVE for ONE o'clock precisely, in lots, each day, the very superior STOCK-IN-TRADE of a British and Foreign Timber Merchant, comprising 3,500 planks, deals, and battens, yellow and white, various thicknesses; 700 prime pine planks; superior dry sawn goods; dry flooring; capital die squares; several prime oak and elm trees, fir poles, hornbeam planks, poles, &c.; oak and elm wheel stocks, elm planks, &c. all of good quality and well seasoned. Also the useful implements, &c. in trade, viz.:—Two timber carriages, a pony, good dog-cart and harness, two deal carts, a trolly, and useful grey horse and harness, counting-house fixtures, staging over pits and sheds, and a variety of useful property and effects.—May be viewed the day previous and Mornings of Sale, and catalogues obtained on the Premises; of Messrs. ALLEN & COLLEY, Solicitors, No. 8, Old Jewry; and at Messrs. PEAKE & EDEN'S Auction Offices, 44, Tooley-street, Southwark.

TO CARPENTERS and CONTRACTORS.

ST. PAUL'S CATHEDRAL.—Several hundred cubic feet of TIMBER, for the most part sound, and of useful scantling, which have formed parts of staging and other temporary erections, &c. TO BE SOLD.—On view, in the Crypt, by cards issued at the Fabric Surveyor's Office, 68, St. Paul's Churchyard, any day during the ensuing week (except THURSDAY, the 8th inst.), between the hours of ELEVEN a.m. and THREE p.m. Offers for the whole quantity to be sent in to the Surveyor, on or before APRIL 12th. Payment in advance, and the removal of the whole within five consecutive working days of the present month, to form conditions of the sale. Contractors are also invited to give Tenders for the Removal of a large quantity of pure Coke Ashes, which would be found useful for laying under basement floors in damp situations.

To Builders and Others.

MR. W. HOLLINGSWORTH will SELL by AUCTION, at the SALE-ROOMS, 13, High Holborn, on MONDAY next, APRIL 5th, at ONE o'clock, a large STOCK of Black and General IRONMONGERY, of every description used in the building trades. Also marble chimney-pieces, closets, paper-hangings, carpenters', joiners', and painters' tools, brass work, plumbers' goods, doors and sashes, and other effects. Catalogues ready.

EASTON HILL-SIDE, near Stamford.—Important Sale of Oak and Ash Timber, Poles, &c.—To Government and Railway Contractors, Shipbuilders, Timber Merchants, Carriage and Implement Manufacturers, and Others.

MESSRS. RICHARDSON beg to notify their instructions to SELL by AUCTION, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 12th, 13th, 14th, and 15th days of APRIL, 1869, 1,698 OAK and 1,096 ASH TIMBER TREES, 29 Elm, 17 Beech, 1 Sycamore, 2 Lime, and 4 Birch Trees, 136 Oak Saplings, 1,554 Sycamore, Ash, Maple, Larch, and other Poles, and 103 lots of Oak and Ash Collars, now felled and lying on Easton Hill-side, marked and numbered with white paint. George Woodward, woodman, Easton, will render intending purchasers every assistance in viewing the different lots up to the day of sale. The Auctioneers can confidently recommend the above timber to the notice of all persons in the trade, the oaks and ash being of fine growth and most superior quality. The whole being within a short distance of Stamford, can easily be removed to any part of the kingdom.—Catalogues and further information may be obtained of Mr. CHARLES THORPE, Jun. St. Mary's-hill, Stamford; or of RICHARDSON & SON, Auctioneers and Surveyors, Barn-hill, Stamford, or who will forward the same on application. The Sale will commence each day at TEN o'clock, the company being respectfully requested to meet the Auctioneers at Lot 1, near to the Collyweston Bridge.

Auction and Valuation Offices, Barn-hill, Stamford,
March 17th, 1869.

WOODFORD, Essex.—Eligible Freehold Building Land.

MR. WHITTINGHAM is instructed to SELL by AUCTION, at the AUCTION MART, Tokenhouse-yard, City, E.C. on MONDAY, APRIL 5, 1869, at TWELVE for ONE o'clock in the afternoon, the eligible FREEHOLD BUILDING LAND, being a further portion of the Woodford Hall Estate, situate in Grove-road, leading from the high road from London to Epping, and within a few minutes' walk of the George-lane Station, on the Woodford branch of the Great Eastern Railway. Nine-tenths of the purchase-money may remain on mortgage, or contract at 5 per cent. to be paid in nine years by equal half-yearly instalments; but the whole or any part of the balance may be paid off at any time without notice.—Particulars, plans, and conditions of sale may be obtained ten days before the sale, at the principal inns in the neighbourhood; of Messrs. RUSSELL & DAVIES, 59, Coleman-street, E.C.; of the Auctioneer, 14, Moorgate-street, London, E.C.; and at the Place of Sale.

TOOTING, Surrey.—Eligible Freehold Building Land and Residences.

MR. WHITTINGHAM is instructed to SELL by AUCTION, at the AUCTION MART, City, E.C. on MONDAY, APRIL 5, 1869, at TWELVE for ONE, the TWO RESIDENCES situate on the high road at the corner of Tooting Grove; and, in Lots, a PIECE of LEASEHOLD LAND adjoining, held at a peppercorn rent for a term of about 55 years. Also, a Further Portion of the eligible FREEHOLD BUILDING LAND, situate on the high road from London to Merton, and between the Broadway, Tooting, and the Tooting Junction Station on the Tooting, Merton, and Wimbledon Extension Railway. Nine-tenths of the purchase-money may remain on mortgage or contract at 5 per cent. to be paid in nine years by equal half-yearly instalments; but the whole or any part of the balance may be paid off at any time without notice. Particulars, plans, and conditions of sale, may be obtained ten days before the sale, at the principal inns in the neighbourhood; of Messrs. RUSSELL & DAVIES, 59, Coleman-street, E.C.; of the Auctioneer, 14, Moorgate-street, London, E.C.; on the estate and at the Place of Sale.